Message from the Steering Committee Chair

Welcome to the Canada International Conference on Education (CICE-2017)! The CICE-2017 provides an opportunity for academicians and professionals from various educational fields with cross-disciplinary interests to bridge the knowledge gap, promote research esteem and the evolution of pedagogy. The CICE-2017 received submissions from 107 countries: 2153 papers, 450 Abstracts, 363 Extended Abstracts, 93 Posters, 165 Workshops and 89 Speakers' Proposals. A double blind paper evaluation method was adopted to evaluate each submission. The following pie chart figures and percentages show the actual submission and accepted submissions after double blind review process:

In addition to the above analysis, we received 87 Exhibitors submissions and accepted 7 based on the relevance of their products and materials to CICE-2017.

Many people have worked very hard to make this conference possible. I would like to thank all who have helped in making CICE-2017 a success. The Steering Committee and reviewers each deserve credit for their excellent job. I thank the authors who have contributed to CICE-2017 and our Keynote Speakers: Professor Paul Sturges, Dr Darlene Ciuffetelli Parker, Professor Terry Anne Campbell, Dr Lorayne Robertson and Dr Joe Kim for agreeing to participate in CICE-2017. I also like to acknowledge my appreciation to the following organisations for their sponsorship and support: Infonomics Society, University of Toronto Mississauga, Harvard University and Canadian Teacher Magazine. It has been great pleasure to serve as the Steering Committee Chair for CICE-2017. The long term goal of CICE is to build a reputation and respectable conference for the international community.
On behalf of the CICE-2017 Executive members, I would like to encourage you to contribute to the future of CICE conference as authors, speakers, panellists, and volunteer conference organisers. I wish you a pleasant stay in Canada, and please feel free to exchange ideas with other colleagues.

Professor Charles A. Shoniregun
CICE-2017 Steering Committee Chair
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Higher Education Quality Assurance And Accreditation Systems In Africa: Origins, Structures And Challenges
(Author: Abetu Kefyalew Waktole)
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(Authors: Cacilda Rodrigues Cavalcanti, José de Ribamar Sá Silva)
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Education Expenditures, Learning Conditions, Psychosocial Characteristics and Their Importance for Teenagers’ School Performance. Evidence from 2015 Programme for International Student Assessment
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Feedback “An important Key in Flipped Classroom”
(Authors: Thuy N.T. Thai, Bram De Wever, Martin Valcke)
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Audience and Multimodality: Factors with Important Influences on the Effectiveness of E-portfolios
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Use of Online Student Written Feedback While Taking Online Classes
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The Relationship between Teacher Self-efficacy, Beliefs and Teaching Practices for Children with Autism Spectrum Disorders in Hong Kong Mainstream Kindergartens
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(Author: Rachna Aggarwal, Siew Leng Lim, Aaron Mathews)
DOI: 10.2053/CICE.2017.0259

Impact of Effective Teachers’ Training on Delivery of Practical in School Science Teaching: Improvement of Teachers’ Skills and Students’ Attitudes
(Author: Ziad Said)
DOI: 10.2053/CICE.2017.0260

Urban vs. Rural: Differences in Junior High Students’ Career Intentions and Perceptions
(Author: Laura Stiles-Clarke, Katarin MacLeod)
DOI: 10.2053/CICE.2017.0261

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(Author: Isaac Akinloye Oyewumi, Stephen Oluwashinaoyomi Akintolure)
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(Author: Muhammad Saleem Khan, Nusrat Ali)
DOI: 10.2053/CICE.2017.0263

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(Author: Nazlia Seyedkhorasani)
DOI: 10.2053/CICE.2017.0264

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(Author: Xiaoyu Wang)
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(Author: Gabriela Walker, Bernard W. M. Wone)
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(Author: Michael Cross, Malau David Matsepe)
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(Authors: Tayyaba Muhammad Akram, Fatima Javed, Sumaira Majeed, Hamid Ikram, Anam Ilyas, Aisha Sami)
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(Author: Cathy S.P. Wong)
DOI: 10.2053/CICE.2017.0271

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(Author: Rania Al-Hammoud, Parisa Bohlouli-Zanjani)
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DOI: 10.2053/CICE.2017.0274

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(Author: Aubrey Statti, Kelly Torres)
DOI: 10.2053/CICE.2017.0275

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(Author: Keith C. Hoy)
DOI: 10.2053/CICE.2017.0276

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(Author: Suman Deep Kaur)
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The Effect of Parental Enforcement, Society Requirements and Role of Text Book on Students’ Interest towards the course of Chemistry
(Author: Tayyaba Muhammad Akram, Aisha Sami, Anam Ilyas, Hamid Ikram)
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(Author: Nguyen Thi Phuong Hao)
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(Author: Nabi Bux Jumani, Fouzia Ajmal)
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(Author: Monique Power)
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(Authors: Christopher Klopper, Wendi Beamish, Helen Klieve)
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The Impact of Household Income on Students Financial Literacy
(Author: Dorjana Nano)
DOI: 10.2053/CICE.2017.0283

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(Author: Suketu V. Shah)
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(Authors: M. John, J.M. Molepo, M. Chirwa)
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(Author: Ruby Hanson)
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Keynote Speakers
Keynote Speaker 1

Paul Sturges, Professor Emeritus, Loughborough University and Professor Extraordinary, University of Pretoria. He has traveled widely throughout the world, giving lectures and conference presentations, leading workshops on Intellectual Freedom topics, providing consultancy, and researching. He has published more than 200 articles, reviews, reports and books that are focused on varieties of issues in information science, with an emphasis on the developing world, a strong specialization in ethics of information, and a recent focus on curriculum development. Chair of the International Federation of Library Associations’ (IFLA) Freedom of Access to Information and Freedom of Expression (FAIFE) Committee 2003-9. Consultant to INASP Curriculum Development Project 2012-15, with workshops in Malawi, Vietnam, Tanzania, Kenya and Ethiopia. Made Officer of the Order of the British Empire (OBE) in 2010 for services to libraries in the UK and overseas, and awarded the IFLA Medal in 2011.
Keynote Speaker 2

Dr Darlene Ciuffetelli Parker is an Associate Professor in the Faculty of Education at Brock University, Ontario, Canada. With many peer reviewed and invited research articles, chapters, books, reports, policy briefs, and newspaper columns, Ciuffetelli Parker’s commitment to narrative inquiry methodology is mirrored by her deeply felt commitment to literacy, critical literacy and narratives of experience. Her current areas of study include teacher education, literacy narratives as they relate to social justice, and poverty and its effect on education in Canadian elementary and secondary schools. Ciuffetelli Parker has completed two large funded projects which spanned over four years on students and families affected by poverty, and educators who work in elementary school communities affected by poverty in Ontario, resulting in a research report as well as a co-authored book entitled Poverty and Schools in Ontario (Ciuffetelli Parker & Flessa, 2011). The book is having an impact on initial teacher education and the continuing professional development of teachers. Ciuffetelli Parker continues to research and write on poverty in secondary school settings as she advances partnerships to support deeper knowledge. She readily is an invited keynote/speaker, providing impactful talks to various organizations including: District School Boards, Research Panels/Partnerships, Ontario College of Teachers, Principal Associations, Canadian Women’s University Council, Child Youth Network, poverty reduction networks, and the community at large. Ciuffetelli Parker’s research and teaching throughout her tenure at Brock University has been recognized locally and internationally with prestigious awards, including: the 2012 international American Educational Research Association (AERA) recipient of the Early Career Award of the Narrative Research Special Interest Group, the 2012 Faculty of Education Award for Excellence in Teaching at Brock University, and the 2013 recipient of the institutional Brock Distinguished Teaching Award. Dr. Ciuffetelli Parker was an administrator, literacy resource-consultant, and elementary teacher in Toronto for over fifteen years before joining Brock University as a professor. She obtained her PhD from the Department of Curriculum and Teacher Development at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT).

Title: Changing Mindset in a Changing World

Abstract: Poverty is complex. In our current society steeped in myths, stereotypes and assumptions about poverty, how can we work together to change mindset? Dr. Darlene Ciuffetelli Parker’s keynote will focus on her storied narrative research in Canadian schools to gain insight on poverty, policy, and how schools are working to identify and address systemic, persistent inequities and barriers of students’ lived economic context and the effect on their wellness and achievement. The audience will be engaged with how school districts are working to create a shift in teaching and leadership practices in order to narrow the gap for systemic barriers, and to move beyond tolerance, to equity and action in education.
Keynote Speaker 3

Joe Kim is an Associate Professor in Psychology, Neuroscience and Behaviour at McMaster University and is actively involved in the scholarship of teaching and learning. He co-ordinates the innovative McMaster Introductory Psychology (macintropsych.com) program which combines traditional lectures with interactive on-line resources and small group tutorials. The program has been prominently featured in Maclean’s, Globe and Mail, Toronto Star and numerous education media outlets. He directs the Applied Cognition in Education Lab (acelab.mcmaster.ca) which aims to understand how cognitive principles such as attention, memory and learning can be applied to develop evidence-based interventions in education and training. Current research interests include: retrieval practice, interleaving, mind wandering, and exercise-learning interactions. He also organizes the annual McMaster Symposium on Education and Cognition (edcog.mcmaster.ca) which brings together cognitive scientists, educators and policy makers to explore how cognitive science can be applied to educational policy and instructional design.

Title: Teaching for Now and Later: Key Factors in Creating Durable Learning

Abstract: Cognitive scientists have been systemically studying processes such as attention, memory and learning for more than 150 years. This rich resource of knowledge has been only recently applied to developing evidence-based interventions in education. A key focus of this research has been to promote long-term (rather than short-term) retention of information through durable learning. In this presentation, I will discuss three key factors that promote durable learning that is maintained beyond the end of a course:

- Learning relies on sustained attention. In the class, instructors can implement methods to reduce mind wandering and students can engage in practices to promote effortful and focused attention.
- Design of teaching materials directly guides learning. Perhaps the largest impact an instructor can make on learning is to offer thoughtfully designed presentation materials that adhere to multimedia learning principles. Slide design that reduces cognitive load can promote student learning.
- Study habits such as retrieval practice strengthen long-term retention. Instructors can implement effective assessment design into the course structure and students can learn to take an active role in learning and testing.

A key message in applying cognitive principles to instructional design is that both instructors and students have important parts to play in developing habits that promote durable learning.
Keynote Speaker 4

Dr Terry Anne Campbell is a Professor in the Schulich School of Education at Nipissing University. Her scholarship centres on teacher education and literacy(ies), focussing on reading, writing, and talk theory and practice in elementary classrooms. She was a storyteller and elementary teacher, as well as a Reading Recovery™ and resource teacher in North Bay for over twelve years before joining the department of teacher education at Nipissing University. She teaches undergraduate courses in Language and Literacies, and graduate courses in the MEd and PhD programs. Recent research projects include a two-year investigation into digital storytelling and writing in junior level classrooms. She has travelled and published widely, presenting workshops and papers on her chief area of interest and expertise: classroom practices that effectively support students as engaged literacy learners in the 21st century. She is currently co-editor of the What Works: Research into Practice monograph series.

Title: Provocative children’s literature: Why we should not shy away from controversy

Abstract: There are at least three good reasons why classroom teachers should not shy away from controversial texts. They provide something to talk about, something to write about, and something fascinating to read. Examples will be explored of well-illustrated picture books with perplexing, humorous, or shocking problems and memorable characters —texts that provide that something that can stimulate students to respond on a personal level when reading, writing and talking.
Keynote Speaker 5

Dr Lorayne Robertson is an Associate Professor and former Associate Dean in the Faculty of Education at the University of Ontario Institute of Technology. Her research interests include the implementation of BYOD policies in schools, and critical media health studies. As a former school district superintendent and education officer, her research includes investigations into the use of digital technologies in applied settings such as schools, colleges, and universities. Dr Robertson has just completed a tour in India where she has been collaborating on equity and inclusion in schools.

Title: Visiting Mother tree schools in India

Abstract: Most nations globally who strive for gains in education quality also struggle with the education of students who learn in ways that differ from mainstream populations. The story of students with special needs in India is, therefore, in some ways a new story, and in some ways it is an old story. Recently we visited four schools in India who have taken extraordinary steps toward building an inclusive philosophy and an enabling environment for students with special needs as well as students who have not, for various reasons, been included in the school system previously. In analyzing the work of these remarkable schools, we construct the metaphor of the Mother tree schools. Simard, a professor of Forestry at UBC, reports how trees are connected to one another through an underground fungi root connection which allows the trees to communicate in a network and transfer nutrients to the trees that need it most. The main tree which organizes the hub of support is called the “Mother Tree.” These Mother trees “read” the signals from younger or weaker trees and respond by providing the nutrients that they require to thrive. What is remarkable is that the assistance of the Mother tree is enacted through a natural, virtually invisible type of support that enables all of the trees to flourish. Similarly, we find that some schools in India, even prior to the Right to Education Act that came into effect in 2010, were providing a unique blend of learning from experience and communities of practice that has allowed them to successfully meet many of the needs of students with exceptional learning profiles. In this talk, we will share some of what we have learned in our school visits.
Workshops
Workshop 1:  FLUENCY - The Ultimate Learning Game

Wheel of Fortune, Family Feud, Jeopardy, are examples of incredibly successful, time-proven syndicated game shows where winning includes not only getting the BEST answer but getting it in the FASTEST time or within a time limit. Exactly the way we traditionally assess learning from K-20 in public and post-secondary schools. Find out how easy it is to set up fluency-based learning in the DCTutor system and to deliver it online in our state-of-the-art software program. BYOD and Participate in building an Adaptive, Fluency-based, TTT* Learning Module online. Improving knowledge performance builds confidence, reduces test anxiety, and in turn, can significantly improve test scores. Follow up with a discussion of how DCT performance analytics is advancing the Science of eLearning through fluency based scoring with:

- Low-risk, High-results Learning (self-paced, in privacy models)
- Global Access and Relevance
- Instant Feedback
- Custom Feedback and Learning (error branching)
- Just-in-Time Custom tasks (system generated)
- Learning style options
- Student-centered study
- Individually targeted POP Quizzes and practice tests.

* Teach, Train, Test

Organisers: Jeff Graham, Associate Professor, University of Toronto Mississauga, Canada
Allan Sura, Instructional Design, DeckChair Learning Systems Inc., Canada
Workshop 2:  Mx : M = Mastering Math; X= Models, Mice, Monkeys, Moose…

Having taught math for many years, I have seen the mathematics tests evolve from ones with only computation to ones with strong emphasis on problem-solving. The student still must be able to do the computation but now must have an excellent command of the language. Researching various state math questions for grades 3-5 I found very surprising information. On some tests I found as many 200 or more words which could confuse a student on any grade level. Of course not all words are unique in the test, but if a child does not know a word in question 2 and that same word appears in question 15, the child will not know it that question, either. No wonder the students with limited language skills have problems in the math section of the test. The word ‘number’ will appear in many math questions. Did you realize the Thesaurus on my word processing program lists seven alternative words and the dictionary has ten definitions? In this workshop, it is my goal for us to connect language and math in fun ways to help every student master math. What do models, mice and monkeys have in common? You will have to come and see while we do activities to help students to switch to LEARN MODE from that off position.

Organiser: Barba Aldis Patton, University of Houston, Victoria, Texas, USA
Workshop 3:   EduGo, At the service of knowledge

Open source and crowdsourcing projects have helped the exponential digital growth that has changed the way we live, interact, work, teach and trade together in our society for the last decades. An open source and crowdsourcing project in social sciences, why not! During the last two years, the EduGo project’s Research and Development (R&D) team has developed a digital platform with the key partnership of computer sciences and the legal sciences. The Mission: to release full potential of the collective knowledge of the Canadian educators in the K-12 field. The objectives: to boost sharing, research and collaboration within a common library and protocol with a self-governed bilingual community managed by its members using common tools. At CICE 2017, the EduGo workshop will reveal the solution to the public with the updated and tested beta software version and promoted constituent organizational chart for Canada. It will be an opportunity for an initial gathering between initiative founders, R&D team and partners to not only introduce the software tools but also the history, the challenges and the vision of the project to YOU researchers, key stakeholders and industry practitioners. The EduGo project core fundamentals are that individual and collective actors engaged in a national common interest goal, within a common work tool and protocols, will create the desired environment to release dynamic collective knowledge.

Organiser: R. Andres Valenzuela Segura, EduGo, Canada
Workshop 4: Dynamic Assessment of Learning Potential

A growing need has emerged in the last two decades for applying dynamic assessment (DA) of learning potential for children, especially since early educational decision may affect them in the future. The focus is on one hand DA of learning potential and on cognitive intervention processes following the assessment. The workshop focus is on 3 tests:

1. The Children's Analogical Thinking Modifiability Test (CATM)
2. The Cognitive Modifiability Battery (CMB): Assessment and Intervention
3. The Seria-Think Instrument.

The workshop will be experientially oriented with emphasis on demonstrations with children (if possible), simulation with participants, and supervised assessment experiences with test materials. It covers also testing procedures, scoring methods, applications for cognitive intervention, scoring methods, interpretation of results, and research findings validating the DA approach.

Organiser: David Tzuriel, School of Education, Bar-Ilan University, Ramat-Gan, Israel
Workshop 5: Authentic Second Language Acquisition Using Virtual Reality

This workshop will explore how Virtual Reality and Gamification techniques can be used to create an environment that allows for the authentic acquisition of a second language. The approach of second language acquisition of French, in Canada, has been widely debated in the past few years. Nevertheless, the 2013 Ontario French as Second Language Curriculum incorporated the results of years of research to compile a curriculum that placed authentic experiences at the heart of second language acquisition. The workshop will be conducted using Voila Learning’s Virtual Reality platform so that participants can truly immerse themselves in the same language acquisition environment that thousands of students experience outside of school. The Ontario French as a Second Language Curriculum highlights the importance of repeated practice of skills. Gamification is the perfect way to address this. The use of leaderboards, point systems, etc. to gauge and increase levels of engagement provides a great way to measure student success and enjoyment all while giving second language acquisition a practical purpose in students’ lives. Research around optimal learning conditions suggests that adjusting the environment to suit the learning needs of different students can help engage students more actively in their learning. Voilà Learning’s Virtual Immersion Campus allows students to move around and explore their surroundings at will, unlike a traditional school environment.

Organiser: Hosni Zaouali, Voila Learning, Canada
Workshop 6: Gamification in education or the workplace to increase motivation and engagement

Gamification uses game elements and frameworks that consumers have been exposed to for years. Gamification has been successful in inspiring increased student motivation and engagement or for any learning participant and can extend to parental and community engagement. Gamification is not to be confused with game-based learning which requires schools or corporations to have large budgets and specialized staff to create video games. In fact, gamifying a training program can be done without technology. This workshop explores the elements of gamification and the transposition of these elements into a classroom or training setting. As the reality of schools change, in rural and urban locales, so must the classroom. The 21st Century is demanding a change in teaching and training. Harnessing the elements that drive relentless efforts to succeed in the virtual world can change the effects on students or employees and their learning experiences.

Organiser: Theresa (Therri) Papp, University of Saskatchewan, Saskatoon, Canada
Workshop 7:  Personalization: Creating an Authentic Presence in Online Classrooms by Using Web 2.0 Tools

Online education is becoming a more common modality for all institutions, but the online modality does not simply mimic traditional classrooms without walls. Online classrooms have more intricate difficulties that may leave instructors feeling like the work is mechanical and connecting with students challenging. In this fun, interactive workshop, participants will learn numerous ways to use Web 2.0 tools in the online environment to increase connection between classroom participants and the instructor.

The main objectives of the workshop are:

a. Collaboratively summarize and compare areas of isolation and disconnect in the classroom  
b. Discuss personalization and our unique ways of expressing it in our classrooms  
c. Learn to use web-based tools, including Loom, Prezi, PowToon, Remind, SurveyMonkey, Animoto, Weebly, Wordle, TED Talks, Still Images, and videos to effectively incorporate in the classroom to create connection

Organiser: Janet Wakefield Darvas, Grand Canyon University, USA
PhD and Doctorate Consortium

The idea of writing a research paper or developing a topic of research interest that can lead to a PhD / Doctorate degree or proposal is always an endless thinking of where, when, why, what and who. Therefore, becoming an experienced researcher and writer in any field or discipline takes a great deal of practice. The Consortium has the following objectives:

- Provide a supportive setting for feedback on current research that will stimulate exchange of ideas;
- Guide on the future research directions;
- Promote the development of a supportive community of scholars and a spirit of collaborative research;
- Contribute to the conference goals through interaction with other researchers and conference events.

The PhD and Doctorate Consortium highlights possible solutions in response to the lack of competence demonstrated by young researchers, Doctorate students and the understanding of what contributes to knowledge gap.

Organisers: Charles A. Shoniregun, Infonomics Society UK and Ireland
Barba Aldis Patton, University of Houston, Victoria, Texas, USA
Sessions
Session 1: Corporate governance, public policy

Title: Returns to schooling: Facts from the macro-analyses
(Authors: Łukasz Goczek, Ewa Witkowska, Bartosz Witkowski)

Title: Higher Education Quality Assurance And Accreditation Systems In Africa:
Origins, Structures And Challenges
(Author: Abetu Kefyalew Waktole)

Title: Federalism and Educational Policies in Brazil: Union Assistance to Subnational Federative Units Under Debate
(Authors: Cacilda Rodrigues Cavalcanti, José de Ribamar Sá Silva)
Returns to Schooling: Facts from the Macro-Analyses

Łukasz Goczek\textsuperscript{1}, Ewa Witkowska\textsuperscript{2}, Bartosz Witkowski\textsuperscript{3}

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\textsuperscript{3}Warsaw School of Economics, Poland

Abstract

The link between the quality of education and economic performance of a country always rises interest. The governments are interested in saving the financial resources that could possibly be spent on education. Yet, high returns to schooling on the country level naturally would stimulate investment in education. In this paper we use advanced econometric tools to prove that such returns exist.

Hanushek and Woessmann [3] used the 1960-2010 data to explain GDP growth as a function of selected educational indicators. While they did not find evidence of the importance of years of schooling, they claim to have showed the relevance of cognitive skills and basic literacy ratio for the economic growth. However, some doubts may arise. Firstly, Hanushek and Woessmann used the contemporary measurement of cognitive skills based on the results of PISA tests to explain the GDP change over the recent 40 years, while in reality one would expect the quality education to reveal its influence on growth with certain delay. This due to the fact that PISA tests are carried out on teenagers who enter the labor market 5-10 years later and do not influence it at the time of filling in the test questionnaires. Thus there is a risk of reversed causality of educational and economic performances. Secondly, their regression was based on cross-sectional data on a group of countries, which provided only 23 observations. Finally, their model could be extended by inclusion of other regressors. This would convert it into the augmented Solow’s growth model: a commonly recognized GDP growth model.

Our research based on the panel of countries in which PISA tests were performed suggests the significance of mathematical skills for the GDP growth, which might be treated as a confirmation of the importance of high quality education for the economic development. However, relatively short history of the PISA tests allows to check only the contemporary relation between the two (at most the educational achievements could be lagged by a few years), which raises similar doubts as Hanushek and Woessmann [3] We then use additional sets of educational and macroeconomic data (Lee-Lee [5]), GDP and other macroeconomic data (Jorda, Schularick and Taylor [4], Bolts and van Zenden [2]), whose coverage reaches even the nineteenth century. The above quoted panel allows us to (1) confirm the significance of education (measured by both expenditures and shares of primary/secondary schools graduates), (2) estimate the delay after which good education contributes to better economic performance, (3) confirm the existence of causal relationship between the educational expenditures and economic performance of a country. In analyses, dynamic panel data estimation techniques are applied to estimate the equation known as “Barro regression” (Barro [1]), which allows to capture significant growth factors together with the effect of GDP convergence.
References


Higher Education Quality Assurance and Accreditation Systems in Africa: Origins, Structures and Challenges

Kefyalew Waktole Abetu
University, Ethiopia
University Patiala, India

Abstract

Quality assurance and accreditation is increasingly becoming an important aspect of higher education institutions in developing countries. This can be seen in the development of relevant policies, structures and systems at national and institutional levels. The purpose of this study was to critically examine the origin, structure and challenges of higher education accreditation systems in African as well as the factors that have shaped these systems. The focus of the study was to examine the major types of accreditation systems, their origins and structures, and the factors that determine the choice of accreditation systems in selected countries in African. Attention has been paid to the challenges to the accreditation systems.

The research objectives and the types of research questions in this study imply the use of a qualitative research approach as a research strategy. Secondary data were gathered from desktop literature study and Internet research, review of available published and unpublished internet based database information on quality assurance agencies in African. The data were analyzed using a documentary analysis method based on the thematic qualitative approach. To make the study manageable, the study was delimited to higher education accreditation systems in 20 Africa countries with established quality assurance agencies. This selection was based on the availability of data and presence of established external quality assurance and accreditation organizations with in African countries.

The study revealed that, based on their autonomy, two major categories of higher education accreditation systems were found in African. Those are the one which is completely under government control and the semi-autonomous bodies. The study also showed that, though quality assurance agencies were established by law as independent bodies, however, they were dependent on government for their funding. Moreover, the governing board and top management members were appointed by the governments. Two major factors that have had their influence in shaping, guiding policy formulation and accreditation systems’ choice in Africa were identified. The internal factors that triggered the system choice were countries’ socio-economic and political systems, while external factors were globalization; colonial legacy; international, regional and foreign countries organizations and donor agencies.

The study concludes that, top down governance approach, high political control, undeveloped systems accompanied by problems of poor resourcing and under developed higher education accreditation systems capacity has been identified as the challenge of the autonomy of the system as well as significantly contributing to ineffectiveness of accreditation systems and contributed to the declining of quality of higher education institutions in Africa continent. Finally, based on the findings and conclusions, the recommendations for further improvement and area of further future study have also been put forward.
Federalism and Educational Policies in Brazil: Union Assistance to Sub-national Federative Units under Debate

Cacilda Rodrigues Cavalcanti, José de Ribamar Sá Silva, George Henrique de Almeida Barbosa

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Abstract

This paper analyzes the Union’s (Federal Government’s) assistance policy to the sub-national federated units (States and Municipalities), from 2004 to 2014, for the provision of basic education in Brazil. The paper discusses the tensions between the federal government policies for technical and financial support to federated units, and the autonomy of the federated units to formulate and implement their own educational policies. The federal government policies implemented since 2004 includes diverse mechanisms for directing the educational policies of sub-national governments and for reducing inequalities in the educational provision. Such approach ended up affecting the degree of autonomy of the federated units and, therefore, tension was created between the two policies. The investigation showed that, although the new assistance policy promoted an increase in the amount of resources transferred to the Northern and Northeastern regions of Brazil, it was not enough to modify the inequality condition. Important discovery of needs for additional research include the identification of the root causes of, one, the limited management capabilities of Municipality personnel to implement the policies and, two, the actual root causes of the inequalities themselves.

1. Introduction

Since the Brazilian Federal Constitution of 1988, there has been an increasingly intense debate regarding the federative model used in the field of education for delegating responsibilities and availability of financing for basic education. In the 1990s, the debate focused on decentralization and fiscal adjustments. From the 2000s onwards, the debate shifted to the issues of equity, quality and collaboration in the model.

This new foci lead to a complexity of arrangements in the financing of basic education, in view of the necessary balance between the division of responsibilities, and availability and parceling of financial resources among the Federal Government, the States and the Municipalities.

The current Brazilian Constitution establishes that the responsibilities for education are shared by the Federal Government, the States and the Municipalities. The Federal Government is responsible exclusively for legislating the directives, evaluating the performance, and providing the technical and financial assistance to States and Municipalities regarding national education. In terms of assistance, the Federal Government is responsible for equalizing educational opportunities for all and achieving a minimum standard of quality in the national education. The Federal Government also has the common and concurrent responsibility with the States and Municipalities for the financing and maintenance of the educational systems. The States have the exclusive responsibility for legislating the directives and for maintaining High School education. Additionally, the States have the concurrent responsibility with the Municipalities for legislating, providing and maintaining Elementary Education. On the other hand, the Municipalities have the exclusive responsibility for providing and maintaining Early Childhood Education.

To guarantee the fulfillment of the responsibilities with public education, the Constitution established a financing model based on the earmarking, redistribution and supplementation of resources transferred to federated units. According to the model, the Federal Government must earmark at least 18% of its tax revenue for the educational system. At the same time, the States and Municipalities must earmark a minimum 25% each of their tax revenue for the educational system.

Another source of resources for education comes from the private sector. Accordingly, all firms are required to set aside 2.5% of their payroll value for the educational system, resources that are viewed as contributions of the private sector to education. Such contributions are known as “salário-educação” or salary-wage, a terminology derived from a previous practice of firms giving scholarships to their workers’ children. Resources accrued are distributed equally to the Federal Government, the States and the Municipalities.

However, the existence of this financing model does not guarantee the sufficient level of resources for meeting the responsibilities allocated to the
Municipalities. Of particular significance is the fact that many Municipalities are very young and small, and, consequently, do not have tax revenues sufficient for providing the universalization of Elementary Education. Thus, as early as the mid-1990s, the debate intensified in questioning the proposed system of collaboration and requiring a more prominent contribution of the Federal Government to the financing of basic education. This paper therefore analyzes the Federal Government’s assistance policy to the States and Municipalities, from 2004 to 2014, for the provision of basic education in Brazil.

2. Methodology

The study is based on qualitative and quantitative research (Cavalcanti) [1]. A content analyses was conducted on official documents produced by the National Fund for the Development of Education, FNDE. The FNDE is the Federal Government’s agency that regulates and manages the implementation of the technical and financial assistance policies and services.

The analyses investigated 11 Financial Assistance Manuals (one for each year from 2004 to 2014), 11 FNDE Management Reports (one for each year from 2004 to 2014), and 526 normative acts of the financial assistance program (from 1999 to 2014). Frequency distributions of findings were tabulated for each of the documentary sources.

Descriptive statistics were calculated for the resources transferred to the States and Municipalities, listed in the Transparency Portal of the Federal Government database. Findings were tabulated and graphed [Figures 1 and 2].

3. The Federal Government's assistance policy for basic education from 2004 onwards

The evidence showed that until 2003, there were 24 FNDE programs to assist State and Municipality governments. During that period, the Federal Government through the Ministry of Education placed calls for proposals requesting technical and financial assistance. Proposals took the form of Annual Work Plans that outlined requests.

From 2004 onwards, the old 24 programs were reconfigured and 19 new programs were created. In addition, the Federal Government decided not to accept requests for assistance through the Annual Work Plans (that were produced by States and Municipalities), and to develop itself detailed programs outlining assistance services to attend to a myriad of States and Municipalities needs. Besides such efforts, the Federal Government also initiated a process of selecting groups of Municipalities that should receive specific assistance in some selected areas.

This new model of provision of assistance to States and Municipalities peaked in 2007 with the implementation of the Education Development Plan (EDP), which restructured all Federal programs under a single policy. This policy articulated the planning and evaluation of State and Municipal systems of education. Two mechanisms were devised to help implement the policy, i.e., the creation of the Basic Education Development Index (IDEB) to measure the level of education development of the State and Municipality, and the Articulated Action Plan (PAR), a project plan that would identify goals to be achieved by the State or Municipality. Measures of present indices served to guide the setting of goals to be achieved through the preparation of a PAR to be implemented. The Federal Government also conditioned its assistance to the elaboration of the PAR and the achievement of the goals.

Initially, 1,242 Municipalities with the lowest IDEB were prioritized to receive assistance from the Federal Government. Sixteen percent (16%) of these were in the Northern region and 67% in the Northeast. Thus, in total, these two regions had the highest number of Municipalities regarded as prioritaries (83%).

With the new assistance policy, there was also a redefinition of parameters to determine the per capita value that would be transferred to programs. This value is now determined on the basis of weights that are ascribed to region, location (rural or urban), teaching level of program (childhood education, elementary and high school), education modalities (special education, and programs for native Brazilians and Afro-Brazilian descendents) and economic level of tax revenue of the federated unit (the lower the level of tax revenue the greater the need and therefore the greater the weight).

This new approach had two major implications. First, it promoted the increase in the transfer of resources to programs all over the country. The average per capita value increased from R$ 94.60 in 2004 to R$ 262.60 in 2010 (its highest value), and increase of 177.5%. Second, Municipalities all over the country benefitted more than States for they received, on average, three times more (see Figure 1).

In order to analyzes whether the new policy has impacted on receipt of resource by regions with worst conditions of education provision (Northern and Northeastern regions), we calculated the per capita values of voluntary assistance programs, which have been modified by the new policy, and we compared its evolution among the regions of the country, during the period under investigation (2004 - 2014).
Accordingly, the average per capita value transferred to the Northern region increased from R$ 18.35 in 2004 to R$ 93.98 in 2010, and increase of 412%. On the other hand, the average transfer of per capita value to the Northeastern region increased from R$ 38.45 in 2004 to R$ 94.98 in 2010, and increase of 147%. The Midwestern was the region that received more resource - increased from R$ 22.18 in 2004 to R$ 114.05 in 2010 (see Figure B).

Despite the increases in remittances of per capita values to the Northern and Northeastern regions and the fact that these regions were regarded as priorities, they were not it that received the highest average per capita values in the all period under investigation – Midwestern (R$ 92.66) and Southern (R$ 77.35) regions. Their receipt of the highest per capita values was due to the fact that, one, these regions already had very high values in comparison to other regions of the country, two, they had a better administrative structure that enabled them to access Federal Government assistance resources, and three, and most importantly, these regions had a greater degree of political influence because some of the Federal decision makers came from these regions and therefore favored them.

It should be noted that the maintenance of the transfer of Federal Government assistance resources depends on recipients, first, maintaining their fiscal situation on target (without default) and, second, demonstrating having executed successfully the planned stages of programs. If any of these conditions are not met remittances are terminated. Consequently, because per capita values are calculated on the basis of transfers actually realized, values not received end up lowering the actual per capita value for either the State or Municipalities.

Analyses also revealed that the average per capita values for regions can be determined on the basis of the per capita values for the States or the Municipalities. In the case of the Northern and Northeastern regions, the value of the average for these regions increased significantly when calculating the average on the basis of values for the State. In addition, the Northeast had the highest per capita value in the country while the North had the second highest. That means that States were able to successfully manage their fiscal condition and execute the planned stages of programs.

On the other hand, the value of the average for these regions did not increase as much when calculating the average on the basis of values for Municipalities. In this case, the Northeast and North ranked third and fourth, respectively. That means that Municipalities in the North and Northeast did not have either the capacity to maintain the fiscal situation in order or the management capability to execute the required stages of the programs successfully.

As a consequence, capabilities of Municipalities all over the country explain the findings that, of the group of twenty Municipalities that received most of the per capita transfers from 2004 to 2014, no one is located in the Northeast, one is in the North, four are in the Midwest, four in the Southeast and 11 in the South. Therefore, it can be concluded that the Federal Government assistance policy has improved the situation of the Municipalities in the Northern and Northeast regions, but not sufficiently to overcome the challenges present in these regions.

4. Tensions between the induction of the Federal Government and the autonomy of the federated units

The literature offers the foundation for analysis of such relationships in federated systems. Arretche [2, 3] and Tsebelis [5] points out that, in federated systems, the central government always has, to a greater or lesser extent, mechanisms to influence the agenda of
for negotiating and mediating policies, and reducing
the influence of veto players.

The first strategy relates to legal and voluntary
transfers regulated by federal normative acts. Such
transfers constitute effective mechanisms for the
implementation of educational policies because they
restrain players with veto power prevalent in the
federative regime. Such strategy corroborates notions
proposed by Tsebelis [5] who explains that policy
stability decreases when the size of the yolk of each of
these actors with veto power increases. (Yolk is a
concept defining the scope of action of all actors in a
common policy, and can be both an area of congruence
divergence).

Accordingly, when the Federal Government
conditions the transfers of assistance resources to the
adoption of its own policy, it is able to implement the
policies it wants, nullifying the influence of the veto
players and therefore enhancing the stability of the
policy. The strategy was then to regulate the transfers
through the National Fund for Education Development
(FNDE), without the participation of any representative
e of the State and Municipalities in the decision
making process. This practice also has implications
regarding true democratic principles where State and
Municipal institutions would have the right to
participate in the decision making process.

The second strategy involves negotiating directly
with Municipal governments, bypassing the influence
of State representatives. Evidence shows that the Direct
Money in Schools Program (PDDE) has been the
program that grew the most over the period studied. In
this way, the Federal Government has been able to
increase the chances that its policy will be
implemented as it was designed.

The third strategy focused on reaching consensus
amongst key actors regarding the acceptance by the
Municipalities of the integrity of federal program. The
use of this strategy has been justified by both Arretche
[2, 3] and Tsebelis's [5]. Arretche [2, 3] argues that
although the design of the policy is influential on the
promotion of acceptance, it is not sufficient because
there is always the possibility that certain actors might
not agree with the proposed design. In such situations,
Tsebelis's [5] suggests that consensus can be achieved
more effectively by influencing a key institutional actor
who could persuade other veto players to adhere to the
proposed policy.

In our investigation, evidence showed that the
Federal Government mobilized political resources to
achieve the desired consensus among the two key
actors in the educational system, i.e., the National
Union of Municipal Education Managers (UNDIME)
and the National Union of Municipal Councils of
Education (UNCME). These entities, as representatives
of managers of municipal education systems, have a

sub-national governments. Arretche suggests that such
influence can occur both through federal regulation and
the design of policies under which the central
government has decision-making authority. Tsebelis
[5] argues that, additionally, central governments can
control the arena of negotiations by designing policy
procedures aimed at reducing the number of veto
players, controlling the dimensions of negotiations,
and, thus, influencing the agenda of sub-national
governments.

These two perspectives were used to analyze, one,
the regulations of the Brazilian Federal Government
technical and financial assistance policy and, two, the
issue of the autonomy of the federated units. Findings
revealed that, from 2007 onwards, the Federal
Government has increased its influence on the
educational agenda of sub-national governments
through three main mechanisms.

The first mechanism involved changing the design
of the technical and financial assistance policies. Arretche [2] advances that, the capacity of the Federal
Government to coordinate actions between spheres of
government is directly affected by the way the
federative relations are structured in the design of
particular policies. Findings from my investigation
corroborate this argument. The new design of the
Federal Government technical and financial assistance
policy incorporated a set of four strategic measures that
allowed greater influence on the educational agenda of
the sub-national governments:
1) Designing national programs that included diverse
areas of content and resource transfer mechanisms.
2) Regulating the assistance beyond its technical and
bureaucratic aspects by incorporating guidelines and
political-pedagogical arrangements. This approach
transformed programs from simple mechanisms of
resource transfer to promoters of basic education
policies.
3) Orienting the planning of the State and Municipal
education systems (through the Articulated Actions
Plan, PAR) and the monitoring of such plans through
the Basic Education Development Index, IDEB.
4) Prioritizing groups of Municipalities as beneficiaries
of specific policies elaborated by the Ministry of
Education.

These strategies have increased the capacity of
federal coordination of governmental actions because
each strategy focuses on a specific level of the
educational system, from the most macro (State and
Municipality Planning of Education) to the most micro
level (formatting actions to be implemented by
schools).

The second mechanism used by the Federal
Government to increase its influence on the educational
agenda of sub-national governments involves three
main strategies, all focused on developing approaches

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great power of convincing and aligning the discourse of their bases. The consensus was obtained both through previous dialogues with both these entities, and through the transfer of free regulatory resources to them, which in the period studied summed up to R$ 27.9 million.

So, in general, our investigation identified the existence of trends in the relationship between the Federal, and the State and Municipalities’ governments in Brazil, all leading to a model that can be called “induced and dependent cooperation” amongst Federal, State and Municipal governments. The observed trends include (a) limited instances of shared decision making, (b) the use by the Federal Government of diverse mechanisms for inducing adoption of policies, (c) limited capabilities of the Municipalities to exercise its autonomy, and (d) the existence of limited capabilities in the Municipalities of the Northern and Northeastern regions of Brazil to administer financial resources and implement policies.

5. Conclusions

Our investigation demonstrated that the Federal Government assistance policy was an important area for the study of federative tensions between the Federal, and the State and Municipal governments. The results show that from of 2004 onward, a new assistance policy of the Federal Government took place in Brazil. This policy was based on national assistance programs with their actions formatted by Federal Government, without participation of State and Municipal governments. The findings our investigation evidenced a tension in the Federal Government assistance policy. This tension involves on the one hand, the power of the Federal Government to elaborate educational policies to be implemented in the States and Municipalities, and, on the other hand, the limited capability of the States and Municipal governments to exercise their autonomy to implement such policies, mainly the Municipalities located in the Northern and Northeastern regions of the country.

The Federal Government assistance policy originally aimed to promoting equity among the regions of the country. However, this did not happen during the period under investigation. Reasons for barriers included the territorial inequalities in Brazil related to limited administrative capacity, the existence of clientelistic practices, the low degree of the prevalent democratic culture and low capabilities in project management, specifically of the Municipalities. These barriers are the principal limitation for the allocation, and the efficient and effective utilization of available resources.

According to Elazar [4], the interdependence that characterizes the relationships among all levels of federations requires the employ of processes that promote the sharing of decision making about public policies. And, even though the Constitution establishes the basic directives for the education policies, the detailing of related policies depends on largely the dynamics of intergovernmental relations, the configuration of political institutions, the design of public policies and the administrative conditions of the federated units. Evidence of this inter-dependence was observed in the study of Federal assistance to sub-national federated units for the provision of basic education in Brazil between 2004 and 2014.

6. References


Session 2: Learning / Teaching Methodologies and Assessment

Title: Education Expenditures, Learning Conditions, Psychosocial Characteristics and Their Importance for Teenagers’ School Performance. Evidence from 2015 Programme for International Student Assessment
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Title: Audience and Multimodality: Factors with Important Influences on the Effectiveness of E-portfolios
(Authors: Di Zou, Haoran Xie, Fu Lee Wang, Tak-Lam Wong)
Education Expenditures, Learning Conditions, Psychosocial Characteristics and Their Importance for Teenagers’ School Performance. Evidence from 2015 Programme for International Student Assessment

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**Abstract**

The aim of this paper is to investigate the relationship between education expenditures as well as school and individual factors and school performance using dataset from Programme for International Student Assessment (PISA) 2015 tests [1]. PISA is the largest international study of students’ skills in the world. Since 2000 PISA tests are conducted every three years in all OECD countries, as well as dozens of partner countries. Respondents are 15-year-olds students and they answer to the same set of questions. The uniqueness of PISA is that its assignments are detached from the core curriculum so that it provides results and knowledge necessary to plan changes in effective teaching. PISA is the most comprehensive and rigorous international programme assessing student performance and collects data on the student, family and institutional factors. There are over 520,000 students from 73 countries who participated in 2015 PISA edition.

In our paper three groups of performance predictors are discussed – education expenditures, learning conditions (class size, extracurricular activities, assistance with homework), school climate (teachers’ interest of students’ performance, peers’ relations, individual characteristics of a student (convictions about one’s abilities, level of stress experienced in school). Effect sizes for students from each participating country as well as for boys and girls separately are estimated. Gender gaps for each domain are assessed and further investigated. Likewise in earlier studies [2; 3; 4, 5] gap differences were the most considerable in case of mathematics with boys scoring higher, slightly less in case of reading comprehension with girls scoring higher and the smallest in case of science. Similarity to previous findings [6; 7] class sizes prove to be the less significant factor explaining performance differences whereas extracurricular activities are significant but the size of the effect differs among countries.

**References**


Feedback “An Important Key in Flipped Classroom”

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Abstract

This study concentrates on the impact of teacher feedback (FB) on learning performance when students tackle guiding questions (GQ) in the online component in a flipped classroom environment. In addition, the changes in two student variables - i.e. students’ self-efficacy beliefs and appreciation of feedback – are studies as they interact with the impact of giving feedback on learning outcomes. In recent years, flipped classroom has attracted the attention of educators and researchers in learning and teaching [2], [6], [8]. This approach is seen as a promising technique for organizing instructional activities, by providing information and preparatory tasks in an online environment, and ensuring that students are engaged in activities such as problem solving, group discussion, and exercises, in the face-to-face environment.

With respect to the design of the learning activities in this study, feedback and guiding questions are key elements in both the online and the face-to-face component. Guiding questions support students to reach achievement in learning activities [1]. The study of Budé, van de Wiel, Imbos, and Berger [3] stress that guiding questions have a positive effect on students learning outcomes. In addition, feedback is considered as one of the most powerful influences on learning achievement [5]. A study of [9] show that students had positive perception on immediate feedback more than delayed feedback. Goldhacker, Rosengarth, Plank, and Greenlee, [4] report that students in feedback conditions achieve better learning outcomes as compared to students without feedback. In addition, Laiken, Milland, and Wagner [7] suggest that students should be provided opportunities to use knowledge and on-going feedback to support the learning progress.

A quasi-experimental Pretest – Posttest research design was implemented during the first ten weeks of the second semester of 2015-2016. Participants were second year students taking the “Environmental Technology” course (N=90) in CanTho College (Vietnam), divided into two learning conditions: (1) With extra feedback (WEF, n=45) and (2) No extra feedback (NEF, n=45). Key ingredients (feedback and guiding questions) were manipulated in both the online and the face-to-face environment. In online section of the WEF condition, students had 90 minutes to watch web-based lectures, solve guiding questions individually and receive immediate feedback from the instructor. In the classroom session (60’), these students worked in groups of five, and they had 40 minutes to discuss and solve guiding questions. After that, one or two groups were chosen randomly to present in front of class group. Then they received feedback from their peers and instructor. Within the NEF condition, students did not receive extra feedback from the teacher in the online environment. The classroom session was exactly the same as in the WEF condition. In order to test the difference between the two learning conditions on learning performance, self-efficacy beliefs and appreciation of feedback, repeated measures technique was applied. In addition, an ANCOVA technique was used to test the interaction of student variables on learning performance.

The findings show a significant difference in learning performance. Students studying in WEF-condition achieve higher learning outcomes as compared to students in the NEF condition (F(1,88)= 4.39, p=.039, partial Eta2=.048). With
respected to student variables, we observe no significant main effect of the intervention on changes in self-efficacy \( (F(1, 88) = 3.35, p = 0.071, \text{partial } \eta^2 = 0.037) \) and appreciation of feedback \( (F(1, 88) = 3.28, p = 0.074, \text{partial } \eta^2 = 0.036) \). Moreover, no interaction effects were seen due to changes in students’ self-efficacy beliefs \( (F(1, 85) = 0.156, p = 0.69, \text{partial } \eta^2 = 0.002) \), and appreciation of feedback \( (F(1, 85) = 0.058, p = 0.81, \text{partial } \eta^2 = 0.001) \) on learning performance. Based on these findings, providing feedback should be considered to support students in solving guiding questions related to web-based lectures in the flipped classroom environment.

References


Audience and Multimodality: Factors with Important Influences on the Effectiveness of E-portfolios

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Abstract

Although the use of E-portfolios for collecting and storing students’ language samples obtained across various tasks over time have been recommended by many researchers as facilitative for language learning, a large number of teachers reported that practically students did not benefit much from using E-portfolios. This paper analyzes students’ learning behaviors while using E-portfolios from the perspectives of contents being published, motivation, richness of extended content, and modes of interaction. Forty-six participants of the study were required to show their process of language and learning development and achievement through creating showcases that display their work such as progress reports and reflective entries in their E-portfolios. Their learning behaviors while using E-portfolios were later compared to those of Facebook. The findings reveal two major factors that may influence the effectiveness of E-portfolios: audience and multimodality. Audience determines students’ motivation of developing E-portfolios, the content they posted and the interactions they had. The degree of multimodality affects not only the contents of the original sources and the following responses but also the richness of them. Developers therefore are suggested to take these two main factors into account while developing the framework of E-portfolios so as to increase the effectiveness.

1. Introduction

A portfolio is a procedure that imposes language learners to present and store examples of their language use in a box or folder, the formats of which may be textual, auditor and visual [1]. Sharing the same nature with portfolios, Electronic (E)-portfolios require learners to gather and save language samples that are produced by them while completing various tasks through a period of time [2]. They are designed to record effort and progress over a period of time, demonstrating an inventory of acquired knowledge, skills, and abilities. With the purposes of promoting learners’ sense of ownership and responsibility, both portfolios and E-portfolios keep record of learners’ language learning progress, reflect their achievement and assist their learning with the involvement of peer and teacher review [2, 3, 4]. Being commonly recognized as one of the most effective approaches to promoting learner autonomy, E-portfolio have been widely used for student self-monitoring and peer evaluation [5, 6]. The incorporation of E-portfolios into language curriculum is also suggested as a way to supplement face-to-face teaching, give each learner an opportunity to share his or her viewpoints and engage in purposeful communications [2, 7]. Therefore, a growing number of institutions worldwide have integrated E-portfolios into their language classrooms with the purposes of better facilitating students’ self-access learning and developing their critical and reflective thinking skills.

However, as E-portfolios may not necessarily meet every individual’s need for self-actualization and may be regarded by some students as irrelevant or useless, a large number of teachers reported that practically students did not benefit much from using E-portfolios [5, 6, 7]. Nevertheless, many social media tools such as Facebook, twitter and blogs have been noted as very effective in promoting communications through providing numerous opportunities for online interactions with both language teachers and learners [8, 9]. The present research therefore attempts to analyze students’ learning behaviors while using E-portfolios by comparing them to the communication behaviors of Facebook users from the perspectives of contents being published, motivation, richness of extended content, and modes of interaction, aiming to figure out factors that are essential for improving the effectiveness of E-portfolios. Three research questions were asked: How do the communication behaviors of E-portfolios users differ from those of Facebook users? What might be possible reasons for the differences? What can we learn from Facebook and further develop E-portfolios?
2. Method

Forty-six undergraduates, who had learnt English for approximately twelve years and were intermediate EFL learners, participated in this research. Their ages ranged from 17 to 19, and they were typical teenagers of the digital age, having frequent and proactive online interactions with their friends and classmates via social media tools. These participants were all registered in an English course for academic purposes, and for the fulfillment of this course, they needed to keep E-portfolios throughout the whole semester for four months. The E-portfolio platform was designed by The Hong Kong Polytechnic University to help students record their language learning progress. Students were required to show their process of language and learning development and achievement through creating showcases that display their work such as progress reports and reflective entries. Each showcase consists of a title, purpose, audience, files or texts, reflection and feedback from teacher or peers. Teachers read students’ E-portfolios to supervise students’ learning processes, and students were also encouraged to comment on others’ E-portfolios. So students’ learning behaviors were reflected by the contents they posted in the showcases, their comments on others’ progress reports and reflective entries, and their interactions with teachers and other peers.

These participants’ learning behaviors while using E-portfolios were compared to those of Facebook from the perspectives of contents, motivation, richness of extended content, and modes of interaction. Specifically, the analyses were based on the topics and contents of the original sources published by the participants in their showcases and the replies of these sources. To complement such analyses, eight participants were interviewed with questions like what do you think about the E-portfolio, how do you interact with others on the E-portfolio platform, and are there any advantages or disadvantages of the E-portfolio, etc.

3. Results and discussion

The findings reveal two factors that influence the effectiveness of E-portfolios: audience and multimodality. The factor audience determines students’ motivation of developing their individual E-portfolios, the content they posted and the interactions they had. The degree of multimodality affects not only the content of the original sources and the following responses but also the richness of them.

3.1. Audience

Audience is essential for the effectiveness of E-portfolios as language cannot be understood outside of a social context or without its effect on the audience [10]. Compared to Facebook, a main disadvantage of E-portfolios, as revealed by our analyses, is the lack of audience of interest. Many students admitted that they wrote the E-portfolios for their teachers, and they felt that their peers or any others were not interested in reading their E-portfolios as the contents were just for the particular course in which they were enrolled. Students considered their development of the E-portfolios as a pure mean to fulfill the requirement of the course, so they were reluctant to post their authentic learning experience in the showcases. The contents of their posts were basically of the same pattern as simple reports of what they have done. Little reflective thinking can be identified. Their posts on the Facebook, however, were more authentic and associated with their lives. Supporting evidence is listed as follows:

“Oh! The E-portfolio! It is not useful! Although we can see others’ showcases and others’ essays and some of their reflective journals, we have no intention and motivation. And my own experience is that I type something in reflective journal, it might be useful for my essay, but most of classmates just say “oh, I have done this, finished this part...’’ and we do not share our experience or comments.” (From the interview transcripts of student 1).

“I don’t think the E-portfolios are useful. My classmates and I simply made lists of what we have done. We never tried to reflect on how these might be useful for our language learning.” (From the interview transcripts of 2).

“We don’t really share and reflect our lives in the E-portfolios because it’s weird to do so. I mean, it’s natural to show your authentic feelings on Facebook because it’s designed for this, and we have friends who want to read these and know more about ourselves. But E-portfolios seem to be for academic studies, so it feels weird to communicate with friends in this way.” (From the interview transcripts of student 3).

As such, peer interactions were very rare in the E-portfolio platforms. Few interactions could be identified, and among the small number of communication records, most of them were meaningless. The participants seldom commented on others’ posts, let alone extended the contents of original sources. Almost 95% of the comments given by most participants were very superficial and even irrelevant sometimes, so the majority of the participants were not engaged. They felt that there was no audience and saw no purpose of communicating on the E-portfolios.
“I don’t comment on others’ E-portfolios entries, firstly because they are boring, just about what they have read and done. Facebook entries are much more interesting because people share their authentic feelings about life. And because the contents they posted are boring, it’s meaningless for me to comment on them. Even if I do so, I just say something like well done or this is interesting, but I don’t really think it’s interesting. I just say so.” (From the interview transcripts of student 4).

“I always feel that no one by the teacher reads E-portfolios. We don’t read others’ E-portfolios.” (From the interview transcripts of student 5).

“I love reading Facebook entries because sometimes the comments on the original posts also include very interesting stuff like further links to other extended information. So it’s not only the original messages but also the comments. The two parts work together as a whole thing that creates a kind of dialogue between the writer and the audience.” (From the interview transcripts of student 6).

Therefore, audience is an important factor that influences the effectiveness of E-portfolios. The existence of audience makes the communications more meaningful as students feel the need and purposes of posting and commenting on the E-portfolios.

### 3.2. Multimodality

Multimodality, the widely-adopted approach that makes use of “several semiotic modes” and “the particular way in which these modes are combined” [11], has intricate relationship with computer-assisted language learning. It has been argued that multimodality is and has always been an integral part of human interaction and communication. Also, the use of several modalities in e-learning systems can effectively make communications more natural, and consequently lead to more flexible and more efficient platforms where users feel more engaging and easier to use [12]. Specifically, diverse ways or modes of presenting information complement each other through providing various types of information that meet different users’ individual needs, preferences and styles [12].

Our interview results showed that Facebook and many other social networks offer better multimodal environments than E-portfolios. The majority of showcases in E-portfolios were normally restricted to written texts with little multimodality being involved. Many participants also pointed out that they rarely tried to incorporate video, audio or pictures in their E-portfolios even though they were encouraged to do so, supporting evidence of which is listed as follows:

“My Facebook posts include many links, videos and images, but I rarely include these in my E-portfolio posts or comments, because I feel they are somewhat different. I mean, E-portfolios are for academic studies, so videos and images may not match the style. Anyway, perhaps I’m wrong. E-portfolios can be as interesting as Facebook if we include these in our entries.” (From the interview transcripts of student 2).

“I agree that different ways of communications make things more interesting. Our E-portfolios are all texts. We somehow don’t include links or images. If we do so, we may have very interesting communications. Yes, I guess this is the main reason that we don’t interact with each other much on the E-portfolios.” (From the interview transcripts of student 7).

“If E-portfolios are as interesting as Facebook, we’ll use them more often. There are many interesting stuff on Facebook, like music, videos and images. So we love Facebook. If E-portfolios include many of such stuff, we’ll be more willing to post and comment on them.” (From the interview transcripts of student 4).

This being the case, whether multimodal environments are involved is a crucial factor that determines the effectiveness of E-portfolios. Language learning is multi-modal in nature, and students commonly engage in communications that combine several semiotic modes, evidence of which can be found from the following interview transcripts.

“Different types of information make Facebook attractive. For example, we can use images to show our status of life, and images can better convey the messages than texts because you can see them. So you don’t need to write something to describe or explain it, what you need is an image and some simple texts to express your feelings.” (From the interview transcripts of student 6).

“I think communication can be achieved through many different ways, not only texts but also images, music and videos. And the later three ways can complement texts well if they are well used, so E-portfolios can be more interesting and effective if these are involved.” (From the interview transcripts of student 5).

“All popular social networks make use of multimedia. This is important. It’s the main element that makes communications on these social networks engaging. E-portfolios can learn from these.” (From the interview transcripts of student 8).

Therefore, the second factor that places important influences on the effectiveness of E-portfolios is multimodality. The majority of students consider Facebook more interesting than E-portfolios because communications can be achieved through various modes such as images, videos, music and extended links in addition to texts. This difference further leads to the diverse behaviors of Facebook users and E-portfolio users. As pointed out by many of our participants, the effectiveness of E-portfolios can be
increased greatly by integrating more modes and various combinations of them.

4. Conclusion

This paper compares students’ communication behaviors between using E-portfolios and Facebook by analyzing the contents students posted in the two platforms, their motivation, richness of the extended contents, and modes of interaction. The contribution of this research to the relevant field lies mainly in its implications for the development and design of E-portfolios. Based on the comparison results, developers are suggested to take two main factors into account: audience and multimodality, while developing the framework of E-portfolios.

Audience is important because it determines students’ motivation of developing E-portfolios, the content they posted and the interactions they had. Audience of E-portfolios can be enlarged by inviting more students, teachers as well as employers to participate in the communications on the platform. Employers are of particularly importance as the inclusion of them may better encourage students to develop their E-portfolios with the purposes of demonstrating and proving their language abilities and communication skills to potential bosses.

Multimodality plays a key role as it affects not only the contents of the original sources and the following responses but also the richness of them. The integration of more modalities in E-portfolios can help make communications more authentic and effective as human interactions are of multimodality in nature.

5. Acknowledgement

The research described in this paper was fully supported by the Start-Up Research Grant (RG 37/2016-2017R), two grants from the Research Grants Council of the Hong Kong Special Administrative Region, China (UGC/FDS11/E03/16 and UGC/FDS11/E06/14).

6. References


Session 3: Curriculum, Research and Development

Title: Use of Online Student Written Feedback While Taking Online Classes
(Authors: Timothy Sawicki, Shawn O'Rourke)

Title: The Relationship between Teacher Self-efficacy, Beliefs and Teaching Practices for Children with Autism Spectrum Disorders in Hong Kong Mainstream Kindergartens
(Authors: Elsa Ling, Pui-sze Yeung, Filiz Polat)

Title: Development of Research Self-Efficacy of Student Teachers using Research-Based Learning
(Author: Kanit Sriklaub)
Use of Online Student Written Feedback While Taking Online Classes

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Canisius College, Buffalo, NY

Abstract

Quality written feedback is one of the factors that make up a good online class. The current research studied seven classes of students using two different levels of feedback prompts. The results showed that the Level 1 feedback prompt resulted in 39% of students reading their feedback. The Level 2 feedback prompt showed a 44% overall feedback reading rate for students taking online classes. The 44% of students in the Level 2 prompt reading their online written feedback is a large 10% increase in students’ reading their online written feedback from the 34% found in the original study [5]. Further analysis were completed related to when the students most read their online written feedback in the course and whether there is any difference in reading rates for minor versus major assignments. Directions for future studies are provided.

1. Introduction

Instructors spend a great deal of time writing online written feedback for their students to read. Careless [1] wrote about the importance of written feedback in student work and how under-researched it is. The study concluded that instructors thought their feedback was very important whereas students did not feel the feedback was as important as instructors thought it was. Ramsden [4] stated that quality teaching requires effective comments on students’ work. Feedback in itself is a complex aspect to study regarding online teaching and since students question its usefulness, studies are needed to address this concern.

In-depth, timely and quality written feedback is needed for good online teaching. In a recent study, fifty-eight percent of students felt feedback would be better if it was timely and if there was more of it [6]. Student comments on feedback type and frequency have been made but how often do students actually read their online feedback is a question needed to be further addressed.

The quality and quantity of feedback needs to be relevant, specific and understandable and the timing of feedback is crucial. For most students, the time frame within which it is possible to learn from, and apply, feedback from one piece of work to another is narrow, particularly within a single module. Changes need to occur to move away from the frustrating cycle of reams of unread feedback [3]. This leads to the question if students often miss reading their online feedback, are there ways to improve the likelihood students will read their online feedback. The current research addresses this question.

Recent research by Sawicki and O’Rourke [5] showed that overall 34% of students read their online written feedback. The study also showed that students read their major assignments at a slightly higher rate than minor assignments and they read feedback earlier in the course at more frequent rate than later assignments. This lead to the current research which is studying ways to improve the student reading rate of their online written feedback.

2. Method

The current research looked at two ways to increase students reading their written online feedback. The study detailed feedback reading patterns using seven classes of graduate courses with a total number of 76 students. Six classes of students totaling 61 students were provided Level 1 feedback prompts. The instructor left a total of 638 online written feedbacks for all Level 1 students. Level 1 feedback prompt was defined as the instructor providing and directing students to their online written feedback a few times throughout the course through the Announcements page. In the current study, the Announcements page specifically stated: “Written online feedback is now available for Module-Assignment #1... you can view that in your drop box. Viewing all written online feedback will help you complete the next module(s)-assignment(s)... if you ever have any questions about feedback or the course you can email me any time.”

The research studied one class of students totaling 15 students who were provided Level 2 feedback prompts. A total of 165 online written feedbacks were left for Level 2 students. Level 2 feedback is defined as making students aware of their written online feedback as in Level 1 (see above Announcement post) plus adding a requirement that students must use their online feedback in their course and reflect on their feedback for a grade. The students were given points for reading and reflecting...
on their feedback. For the Level 2 research group a small three-point assignment was used to direct students to read and reflect on their instructor feedback from a previous assignment. This was done early in the course, (module 2) so students would be using their online written feedback soon after they began the course.

It is hypothesized that the Level 2 feedback prompts, especially in Module 2 will raise the student feedback reading rate to 100% since their grades are affected by it.

3. Results and Discussion

An original study by Sawicki and O’Rourke [5] showed that 34% of student read their online written feedback across minor and major assignments. Such a low percentage may surprise instructors considering the time and effort instructors put in to write feedback for their students. Further, studies on good online teaching show that quality written feedback is important yet students do not always view feedback as crucial [1].

The current research set out to improve the rate of students reading their online written feedback by providing some students with Level 1 prompts and some students with Level 2 prompts. The results showed that the Level 1 prompts improved online feedback reading rates to 39% overall from the original study by Sawicki and O’Rourke [5] which showed a 34% reading rate. Minor assignments were read at a rate of 36% (199 feedbacks read/ 559 feedbacks left by the instructor). Major assignments were read at a rate of 66% (40 feedbacks read/ 61 feedbacks left by the instructor). This represented a 39% overall feedback reading rate (239 feedbacks read/ 620 feedbacks left by the instructor). This is a 5% increase from original study, which occurred without prompts. The current Level 2 feedback prompt group showed a 66% major assignment-reading rate indicating that availing students the knowledge that is feedback is available and telling them that they should read it gets them to read the feedback. This is especially true when the assignments are worth a great deal of their grades. The minor assignments are worth 3-5% of their grade across modules and the major assignment are worth 30-40% of their final grade.

The results showed that the Level 2 prompts improved online feedback reading rates to 44% overall from the original study by Sawicki and O’Rourke [5] who showed a 34% reading rate and improved on the 39% Level 1 prompt group. Minor assignments were read at a rate of 45% (68 feedbacks read/ 150 feedbacks left by the instructor). Major assignments were read at a rate of 33% (5 feedbacks read/ 15 feedbacks left by the instructor). This represented a 44% overall feedback reading rate (73 feedbacks read/ 165 feedbacks left by the instructor). The 33% for major assignments read is lower than expected and may be attributed to a small sample size. Work is underway to increase the Level 2 control group size and add to the current research. It was interesting to note that across the first five modules that the Level 2 group reviewed their feedback at a rate of 56% (42 feedbacks read/ 75 feedbacks left by the instructor). Further noteworthy results for the Level 2 group was that the assignment (module 2) which required students to read the feedback had an 80% feedback-reading rate instead of the expected 100%. This indicated that requiring students to read feedback for grades might not always get 100% compliance. Table 1 demonstrates the tallies and percentage of student feedback (FB) read across all course modules and for final project/ the final exam for the Level 1 Feedback prompt group. Table 2 demonstrates the tallies and percentage of student feedback (FB) read across all course modules and for final project/ the final exam for the Level 2 Feedback prompt group.

The results confirmed the hypothesis that prompting students to read their feedback (Level 1 group) will improve their online written feedback reading rate. This was done by comparing the current groups to an original study of Sawicki and O’Rourke [5] which showed a 34% feedback reading rate with little or no prompts. The Level 1 group in the current research improved the feedback reading are to 39% with Announcement post prompts. To further improve the student reading their online feedback the instructor required the students to read their feedback for a grade (Level 2 Group) and this improved the reading rate to 80% on that individual assignment and improved the overall course rate to 44%.

Other interesting findings are shown in the results. The students in the Level 1 and Level 2 groups both reviewed early course feedback more than later feedback in the course. Viewing the tables above it is visually evident the students review feedback in the early modules at a higher rate than in the later modules. For example, Level 1 Course 3 Module 1 students (Table 1) reviewed their feedback at a 78% frequency and Level 2 Course 1 Module 3 students (Table 1) reviewed their feedback at a 53% frequency rate. Visually reviewing Tables 1 and 2 it is evident students read their online written feedback more early in the course than later in the course. This supports the findings of the original study by Sawicki and O’Rourke [5].

Another interesting finding was that students in the Level 1 feedback prompt group read their major assignment feedback at a rate of 66%. This was a market improvement from the original study of Sawicki and O’Rourke [5] who showed students read their major assignment feedbacks (without prompts) at a rate of 35%. This research indicates that instructors should use Announcement posts and
Table 1. Percentage of Feedback Read Across Course Assignments- Level 1 Prompt

<table>
<thead>
<tr>
<th># of Students</th>
<th>Mod.1</th>
<th>Mod.2</th>
<th>Mod.3</th>
<th>Mod.4</th>
<th>Mod.5</th>
<th>Mod.6</th>
<th>Mod.7</th>
<th>Mod.8</th>
<th>Mod.9</th>
<th>Mod.10</th>
<th>Final Exam/Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total/6 Course 1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>% FB Read</td>
<td>50</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>50</td>
</tr>
<tr>
<td>Total/13 Course 2</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>% FB Read</td>
<td>54</td>
<td>54</td>
<td>54</td>
<td>62</td>
<td>39</td>
<td>31</td>
<td>39</td>
<td>46</td>
<td>46</td>
<td>23</td>
<td>77</td>
</tr>
<tr>
<td>Total/9 Course 3</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>% FB Read</td>
<td>78</td>
<td>56</td>
<td>44</td>
<td>44</td>
<td>56</td>
<td>22</td>
<td>22</td>
<td>33</td>
<td>22</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Total/6 Course 4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
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<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>% FB Read</td>
<td>33</td>
<td>67</td>
<td>50</td>
<td>33</td>
<td>17</td>
<td>33</td>
<td>50</td>
<td></td>
<td></td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total/16 Course 5</td>
<td>9</td>
<td>3</td>
<td>5</td>
<td>3</td>
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<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>% FB Read</td>
<td>56</td>
<td>19</td>
<td>31</td>
<td>19</td>
<td>38</td>
<td>19</td>
<td>19</td>
<td>13</td>
<td>13</td>
<td>19</td>
<td>81</td>
</tr>
<tr>
<td>Total/11</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>% FB Read</td>
<td>45</td>
<td>36</td>
<td>36</td>
<td>55</td>
<td>36</td>
<td>18</td>
<td>55</td>
<td></td>
<td></td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>

Table 2. Percentage of Feedback Read Across Course Assignments- Level 2 Prompt

<table>
<thead>
<tr>
<th># of Students</th>
<th>Mod.1</th>
<th>Mod.2</th>
<th>Mod.3</th>
<th>Mod.4</th>
<th>Mod.5</th>
<th>Mod.6</th>
<th>Mod.7</th>
<th>Mod.8</th>
<th>Mod.9</th>
<th>Mod.10</th>
<th>Final Exam/Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total/15 Course 1</td>
<td>8</td>
<td>12</td>
<td>8</td>
<td>7</td>
<td>7</td>
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<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>% FB Read</td>
<td>53</td>
<td>80</td>
<td>53</td>
<td>47</td>
<td>47</td>
<td>47</td>
<td>27</td>
<td>27</td>
<td>33</td>
<td>27</td>
<td>33</td>
</tr>
</tbody>
</table>
remind students that online written feedback is available to them at all times.

A further finding was that before and after the Module which required students to read and reflect on their online feedback for a grade (Level 2 group), the feedback reading rate was 53%. This indicates that requiring students to read and reflect on their online written feedback for a grade will improve their reading rates around the required module.

4. Conclusion

The research looked at improving the rate that students read their online feedback and found that requiring students to read and reflect on their online written feedback for a grade can result in students reading their feedback 80% of the time. The overall course feedback reading rate for Level 2 feedback prompts was 44% which was an improvement over the 39% reading rate in the Level 1 group (Announcement post prompt) and the 34% without prompts [5]. Instructors will have to consider if or how often they will require students to read their online written feedback for a grade. It is shown in this study the more an instructor can require students to read feedback the higher compliance amongst students will occur.

The 80% rate of reading online written feedback when it is required for a grade is a high reading rate but is somewhat perplexing and it can be speculated that some students do not know how to look at their online written feedback or know where to look for it. Further techniques to improve students reading their online written feedback are needed.

5. References


The Relationship between Teacher Self-efficacy, Beliefs and Teaching Practices for Children with Autism Spectrum Disorders in Hong Kong Mainstream Kindergartens

Elsa Ling, Pui-sze Yeung, Filiz Polat
The University of Hong Kong, HKSAR China

Abstract

According to the Developmentally Appropriate Practice (DAP) proposed by the National Association for the Education of Young Children (NAEYC), early childhood education programme should be able to promote social competence of children through play, child-centered and interactive group activity. The prevalence of Autism Spectrum Disorder (ASD) has increased tremendously over the last two decades. Both the Hong Kong Education Bureau and NAEYC advocate a play-based and child-centred teaching approach and believe that applying the approach in pre-primary education programmes can provide more socialization opportunities to young children including children with ASD enrolling in integrated programmes in mainstream kindergartens. To what extent does Hong Kong kindergarten teachers of integrated programmes with children with ASD apply the DAP beliefs in actual practices in inclusive classroom? To what extent does Hong Kong kindergarten teacher’s self-efficacy for inclusive practices mediate the relationship between their DAP beliefs and teaching practices in inclusive classroom? How are teacher qualifications and work experiences related to teacher self-efficacy and their DAP teaching practices in kindergarten inclusive classroom?

One hundred and forty four Hong Kong kindergarten teachers of inclusive classes with children with ASD participated in the study. Teacher Self-efficacy Scale (TSE), Teacher Belief and Practices Survey (TBS) and the Instructional Activities Scale (IAS), were used to measure teacher self-efficacy, DAP beliefs and teaching practices in inclusive classroom respectively. Items specific to catering for children with ASD were included in each scale. Confirmatory Factor Analysis (CFA) was used to validate the three scales used.

Results of path analysis using structural equation modelling showed that teacher self-efficacy had a significant mediating effect on the relationship of teacher DAP beliefs and teaching practices. Efficacious teachers were more likely to adhere to their DAP beliefs and conduct more child-centered activities for both groups of typically developed children and children with ASD. Correlation suggested that teacher self-efficacy is related to both work experiences and DAP teaching practices. Experienced teachers had higher level of teacher self-efficacy and more likely to confront challenges in inclusive classes than less experienced teachers. ANCOVA results showed that the main effect of teacher qualifications on both DAP beliefs and teaching practices were not significant. Yet, teachers who received training in programmes concentrated on pre-primary inclusive and special education were found to have higher teacher self-efficacy than those who had not undergone those training. While the enhancement of teachers’ teaching skills and knowledge is an essential element in any teacher training programme, the empowerment of teacher self-efficacy is equally important. Overall, the findings in the present study underscore the importance of teacher self-efficacy in understanding teacher DAP beliefs and teaching practices in inclusive classroom in Hong Kong kindergartens.
Development of Research Self-Efficacy of Student Teachers using Research-Based Learning

Kanit Sriklaub
Faculty of Education, Chulalongkorn University, Thailand

Abstract

If student teachers have higher levels of research self-efficacy, they will have confidence and undertake effective research as part of their professional work. This action research is intended to enhance student teachers’ research self-efficacy. The objectives were 1) to analyze the instructions associated with using research-based learning as part of Research for Learning and Teaching Development course; 2) to analyze and compare the research self-efficacy of student teachers before and after using research-based learning as part of Research for Learning and Teaching Development course; and 3) to analyze and compare the research self-efficacy of student teachers using research-based learning and conventional methods as part of Research for Learning and Teaching Development course. A sample of 56 student teachers was divided into an experimental group and a control group (28 in each group). The experimental group was instructed using research-based learning and the control group was instructed using conventional methods. The research instruments were learning notes and a research self-efficacy scale, which had content validity, internal consistency reliability (Cronbach’s a coefficients equal to 0.93) and construct validity. Data were analyzed by content analysis, descriptive statistics and a t-test. The results are presented in this paper.

1. Introduction

Currently, all programs for student teachers in every university state that during their fifth school year, while doing their professional training, student teachers have to conduct at least one piece of research as part of their training. However, while student teachers are in the teachers’ program, there is only one course requiring them to do research. From the researcher’s direct experience, after a student teacher completes that course, he/she is equipped to do research, but is not confident that he/she can do it.

The reason may be that courses in the program mainly aim to provide student teachers with knowledge. Research processes are mentioned on some occasions, which is not enough to develop research self-efficacy. One way to solve this problem is to change the learning method to research-based learning. This approach will enhance the research self-efficacy of the student teachers, who will become familiar with research processes and get to study current research results related to their field of competency. As a result, student teachers will be confident, know that they can carry out research, and create quality research because they have knowledge, a positive attitude toward researching, and the skills required to undertake research. They will have a chance to practice doing research and learn from past research studies [2] [4].

This research aims to develop the research self-efficacy on the part of student teachers and make them feel confident about undertaking research in the future while studying to become teachers, and provide them with knowledge and research skills via research-based learning. This method will expose student teachers to research processes in every step of the learning process and provide them with knowledge related to researching.

2. Research self-efficacy

Research self-efficacy is based on Bandura’s theory of self-efficacy which suggests that outcomes change according to expected results. For example, teaching self-efficacy tells one how much one believes in one’s ability to teach. Likewise, research self-efficacy is about how much one believes in one’s ability to conduct research [1] [3].
There are many ways to develop student teachers’ research self-efficacy. One of them is to create an atmosphere of research-related training. Relevant parties must provide student teachers with knowledge, suggest practical methods, and facilitate and organize research-related events for the student teachers to take part in [4]. Another way is to organize activities related to self-efficacy theories, such as pointing out the benefits of research so that student teachers become aware of its importance, apply psychological principles, and organize hands-on activities [2]. Student teachers should be given opportunities to undertake research in different situations or study other people’s research so that they develop research self-efficacy. At present, the focus is on developing research-related knowledge in compliance with subjects and the behavioral objectives of subjects aiming at providing student teachers with research-related knowledge such as methods of searching for knowledge, queries, designing research of many kinds, choosing statistics to analyze data, writing and presenting reports and evaluating research. Activities relating to exposing student teachers to research activities are consistent with the research-based learning concept, which will be used to develop research self-efficacy.

3. Research-based learning

Research-based learning uses research processes and research results to organize learning, or uses research processes to gather knowledge. Research results could be given as examples or discussed among student teachers. They should have opportunities to undertake research from the first step until it is completed [5]. In addition, [6] stated that research-based learning allowed student teachers: 1) to practice the different research steps; 2) to undertake research with teachers; 3) to study research in order to obtain more knowledge; and 4) to use research results or examples in an area of interest to obtain more knowledge.

In this research, research-based learning is used to allow student teachers to practice doing research. Instructors act as facilitators. Research topics will be the student teachers’ choices. Another method is to use examples or research results associated with learning. Examples of correct or wrong information in research can be pointed out. Student teachers can study research to gather knowledge. Instructors will keep an eye on the knowledge that student teachers obtain. Another method is to let student teachers undertake research with teachers. Due to context and time constraints, this method was not chosen in this research.

After studying documents and related research studies, the findings can be summarized as follows. Student teachers obtain knowledge via research-based learning. They will gain confidence and realize the level of their ability to undertake research, which is good in both the short and the long run. In the short run, research self-efficacy helps student teachers succeed in research subjects and develop their teaching skills. In the long run, when student teachers graduate and engage in their career, they will be confident and unhesitant when it comes to undertaking useful research. Details of research content are as follows.

4. Research method

This classroom action research was part of the Research for Learning and Teaching Development course. A sample of 56 student teachers was divided into an experimental group and a control group, with 28 in each group. Students’ backgrounds in the experimental group and the control group were equal.

4.1. Research design

A pretest-posttest control group design was used in this classroom action research as Figure 1. The experimental group was instructed using research-based learning, and the control group was instructed using conventional methods.

<table>
<thead>
<tr>
<th>E</th>
<th>O₁</th>
<th>X</th>
<th>O₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>O₁</td>
<td></td>
<td>O₂</td>
</tr>
</tbody>
</table>

Figure 1. Research design

4.2. Instruments

The research instruments were learning notes and a research self-efficacy scale, which had content validity, internal consistency reliability (Cronbach's α coefficients equal to 0.93) and construct validity.

4.3. Data collection

Qualitative and quantitative methods were used. Qualitative data were collected in the form of learning notes after using research-based learning activities in the classroom. Quantitative data were gathered before and after using research-based activities in the classroom.

4.4. Analysis

Data were analyzed with the use of content analysis, descriptive statistics and a t-test. The results are presented below.
5. Results

Results are divided into 3 parts: 1) Synthesis of research-based learning methods; 2) Comparison of the research self-efficacy of the experimental group before and after research-based learning; and 3) comparison of research self-efficacy after the experiment involving experimental group and control group.

Table 1. Synthesis of research-based learning methods

<table>
<thead>
<tr>
<th>Principles</th>
<th>Methods</th>
<th>Things to be cautious of/improve</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focusing on creating knowledge together with using examples or research details</strong></td>
<td>- Giving lectures to student teachers so they have access to the main ideas&lt;br&gt;- Giving research examples to student teachers to allow them to discuss the good and bad points</td>
<td>- Main ideas and examples should be presented separately. They should not be mentioned only at the end.</td>
<td>- Student teachers can see the picture, obtain knowledge, and practice critical thinking.</td>
</tr>
<tr>
<td><strong>Practicing thinking about research examples</strong></td>
<td>- Let student teachers observe and analyze details and criticize good and bad points of pieces of research</td>
<td>- Sometimes letting student teachers undertake activities before they obtain knowledge of those activities is not as successful as it should be.</td>
<td>- Student teachers participate in activities.&lt;br&gt;- Student teachers react while working.&lt;br&gt;- Student teachers get to practice critical thinking.</td>
</tr>
<tr>
<td><strong>Simulating activities related to research studies</strong></td>
<td>- Simulating research situations for student teachers to practice, for example engaging in research activities in which research examples can be obtained (group work)</td>
<td>- Instructors must continuously supervise student teachers.&lt;br&gt;- Giving opportunities to student teachers to meet their advisors regularly.</td>
<td>- Student teachers get to practice research skills.&lt;br&gt;- Creating good interactions between instructors and student teachers.</td>
</tr>
<tr>
<td><strong>Learning from real situations</strong></td>
<td>- Instructors must prepare teaching materials related to research, such as research articles, research reports, research instruments, etc.</td>
<td>- Suggesting and giving questions to student teachers, so they think about and analyze the instructor’s examples.</td>
<td>- Student teachers get to practice research skills.&lt;br&gt;- Student teachers gain direct experience.</td>
</tr>
<tr>
<td><strong>Tracking and giving suggestions on researching continuously</strong></td>
<td>- Discussing and exchanging ideas on how to undertake every research step with student teachers.&lt;br&gt;- Communicating and giving information in a timely manner.&lt;br&gt;- Having tools to track progress.</td>
<td>- During discussions and idea exchange sessions, student teachers should be encouraged to fully express their opinions.&lt;br&gt;- Focusing on giving advice based on empirical data.</td>
<td>- Student teachers understand and get to continuously practice research skills.&lt;br&gt;- Enhancing interactions between instructors and student teachers.</td>
</tr>
</tbody>
</table>
5.1. Synthesis of research-based learning methods

From 13 research-based learning activities, successful methods, things to be cautious of/improve and results of learning activities observed by instructors, were identified and summarized in Table 1.

5.2. Comparison of the research self-efficacy of the experimental group before and after research-based learning

The value of the research self-efficacy of the 28 experimental group student teachers before research-based learning ranged from 3.04 to 3.64, with an overall average value of 3.37. The range of the research self-efficacy of the 28 experimental group student teachers after research-based learning was 3.45 to 3.89.

When the average values of the research self-efficacy of the experimental-group student teachers before and after research-based learning were compared, it was found that research self-efficacy of the student teachers overall, and in four aspects, before and after research-based learning was different, with a statistical significance of 0.05. The average value of research self-efficacy was higher than before the experiment.

5.3. Comparison of research self-efficacy after the experiment involving experimental group and control group

The average values of research self-efficacy in each aspect of the 28 experimental-group student teachers and the 27 control-group student teachers after the experimental group had had research-based learning and the control group had had conventional learning methods were evaluated. With regard to the aspects of design and data collection and data analysis, the experimental group had a higher value than the control group. The average value in terms of searching and synthesis of knowledge from research and research reports of the experimental-group student teachers and the control-group student teachers was similar.

When the average values of research self-efficacy on the part of the experimental-group student teachers and the control-group student teachers after research-based learning and normal learning (after the experiment) were compared, it was found that only the average values relating to design and data collection and data analysis were different with a statistical significance of 0.05. This shows that research-based learning made the level of research self-efficacy in design and data collection and data analysis of the experimental group higher than that of the control group.

6. Conclusions

The research-based learning methods in the classroom that were achieved consisted of 1) focusing on creating knowledge together with using examples or research details; 2) practicing thinking about research examples; 3) simulating activities related to research studies; 4) learning from real situations; and 5) tracking and giving suggestions on researching continuously. After using research-based learning, four components of research self-efficacy in the experimental group were significantly higher than before, at the level of 0.05. In addition, the research self-efficacy in terms of research design, data collection and data analysis of the experimental group were significantly higher than that found in the control group, at a level of 0.05.

7. Discussions

The research results showed that the level of research self-efficacy in every aspect of the experimental-group student teachers was higher after research-based learning. The aspects with the highest average value were searching and synthesis of knowledge from research and design, and data collection and data analysis. The reason why these two aspects had the highest average value may be that most subjects placed more importance on research design, which started from determining the research focus to drafting the research structure. The amount of research-based learning that most researchers had must be consistent with the content of each subject.

After quantitative data was considered, the overall research self-efficacy of the student teachers after research-based learning was higher in every aspect. Learning activities for student teachers are ongoing activities throughout. This will increase student teachers’ confidence in researching through activities that are organized by the researcher as part of classroom activities. Activities that the researcher does regularly are using examples as main activities in the classroom and continuous discussion [2]. These activities help student teachers perform better, but one question that has not been answered in this research was ‘Which activities are the main factor for student teachers to perform well?’ The answer will require additional research.

Research results also showed research self-efficacy in terms of the aspects of design and data collection and data analysis on the part of the experimental group to be higher than that of the control group with a statistical significance of 0.05,
while in terms of other aspects, the research self-efficacy of the experimental group was higher than that of the control group but with no statistical significance. When the activities that the researcher organized for the experimental group were considered, it was found that most activities focused on research design, and practicing analyzing data linked to the design of the research in each aspect. In addition, recommendations were given and information was exchanged with regard to student teachers while they analyzed data in their groups. These activities are probably the reason for the research self-efficacy of the experimental-group student teacher with regard to the aspects of design and data collection, with data analysis being clearly higher than that of the control-group student teachers.

8. Recommendations

The results showed that research-based learning could develop the research self-efficacy of student teachers. Therefore, when arranging courses related to research at the Bachelor’s degree, Master’s degree and Doctorate degree levels, instructors should focus on examples to be used in teaching so that student teachers are exposed to real research activities. In addition, student teachers should be exposed to thinking skills, because researching processes usually involve thinking in a number of different ways. On another note, instructors should supervise student teachers undertaking research and should focus on student teachers exchanging ideas with the instructors.

Even though the level of research self-efficacy with regard to the aspect of data analysis on the part of the experimental-group student teachers was different from that of the control-group student teachers with a statistical significance of 0.05, the average value was still lower in terms of other aspects. This research result showed that instructors should allow more time for student teachers to develop their analytical skills and interpret analysis results using computer programs, and in order to help student teachers understand how to analyze data and interpret analysis results.

The level of research self-efficacy of student teachers after the experiment using research-based learning was higher. Various methods or activities should be used in future research to allow greater in-depth analysis. The research self-efficacy of student teachers should be measured and evaluated after each learning activity.

9. Acknowledgement

The researcher would like to thank Prof. Emeritus Dr. Nonglak Wiratchai, Prof. Dr. Suwimon Wongwanich, and Dr. Chayut Piromsombat, for their contribution to this research.

10. References


Session 4:  Adult Education

Title: Labour Market Outcomes of Foreign Qualifications and Skills in Canada – Results from PIAAC
(Author: Silvia Annen)

Title: The Interplay of Employability Skills, Academic Achievement and Selected Demographic Variables among Undergraduate Students at the United Arab Emirates University
(Authors: Abdullah Seif Abdullah, Hughlett Omris Powell, Shamma Juma Al Falasi)

Title: Foundation Studies Policy in Australia and New Zealand: Policy Inaction, and Policy in Action
(Author: Lindee Conway)
Labour Market Outcomes of Foreign Qualifications and Skills in Canada – Results from PIAAC

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University of Toronto (OISE), Canada

Abstract

The following results derive from a project, which aims to analyse the labour market outcomes of migrants in comparison to native born Canadians. Within this project a mixed methods approach is used - including quantitative analyses of the PIAAC data set, as well as qualitative case studies of Canadian enterprises and expert interviews. In doing so, the usability of foreign qualifications and skills in the labour market is evaluated. The analysis focuses on the income and the general occupational status of employees. The theoretical background is formed by human capital theory and the approaches of credentialism as well as signaling and screening.

This paper analyses the Canadian PIAAC data 2012 and focuses on employees' income. The analyses refer to the Mincerian wage regression model and successively add further variables to the model, which represent the respondents' migration status. The results show the income effects of educational attainment, work experience and migration status.

1. Introduction

Canadian Society is characterised by a plurality of immigrants. Data from the 2011 National Household Survey show that 22% of the Canadian population aged between 16 and 65 years were born abroad. While immigrants historically mainly came from Europe, currently Asia is the most frequent region of origin. By implementing the points system in 1967 the Canadian migration policy focused mainly on economic criteria [1]. Thus, more migrant labourers came to Canada than people migrating because of family reasons or refugees [2]. Furthermore, the evaluation of individual immigrants within the Canadian points system and fluent language skills in English or French have positive labour market effects [3]. At present, the Canadian migration policy and the corresponding recognition approaches are still strongly geared to economic criteria as well as to qualifications and skills.

The efficiency and performance of the Canadian selection system is consistently been discussed critically [4; 5; 6]. Several studies document the deterioration of the labour market outcomes of qualified immigrants, which is reflected in comparatively lower incomes, higher unemployment rates, a devaluation of skills as well as an economic marginalisation [7; 8; 9; 10].

When analysing the usability of foreign qualifications and competences, skill under-utilization and pay inequity have to be distinguished – both are forms of employment discrimination of immigrants and pose significant challenges in Canada. In contrast to pay inequity, few studies have addressed the incidence of skill under-utilization [11]. Existing studies on the recognition of foreign qualifications and related income effects often use census data, but also other sources like the Ethnic Diversity Survey or the Longitudinal Survey of Immigrants to Canada. Income differences and over-education of immigrants have been mainly explained by the imperfect transferability of human capital across country borders. Transferability depends on, how closely the country of origin compares to the host country in terms of economic conditions, educational systems, industrial structure, institutional settings, language, etc. [12]. Further studies prove the devaluation of immigrants’ human capital – especially lower payment for foreign work experience (most notably if not gained in Europe or North America) [13; 14]. Schaafsma and Sweetman verify a relation between the age at the time of migration and income as well as acquired educational level [14].

Aydemir and Skuterud provide evidence that one third of the difference of entry salaries of immigrants in comparison to native born Canadians can be explained by language skills and country of origin [15]. This difference is attributed to lack of recognition of foreign work experience [15]. Li also arrives at the conclusion that income differences can be largely explained by the varying human capital and work experience of immigrants [12]. Owen and Lowe use a qualitative approach to gain insights about the reasons for existing income differences [16].

Many studies use census data or other data sources that do not contain acquisition of the foreign qualifications information. The PIAAC (Programme for the International Assessment of Adult Competencies) data include this information, allowing for the examination of differences
between qualifications from differing origin countries.

Besides taking into account skills individually, interactions between different skills can also have relevant influence on income. In this regard Warman, Sweetman and Goldmann provide results which suggest that the rate of return on education is positively related to literacy skills (in English or French), but in contrast there is no positive relation to the rate of return on pre-migration labour market experience [17]. Pay inequity related with ethnicities appear to be more related to companies’ hiring decisions limiting access to jobs, than to their internal wage policies [18], [19].

2. Theoretical background

Hawthorne constitutes that the lack of screening pre to migration is a central factor for the negative labour market results of immigrants [20; 7]. According to the data of the Longitudinal Survey of Immigrants to Canada immigrants during their first two years after arriving in Canada perceive their lack of Canadian work experience as well as the recognition of foreign credentials as the biggest obstacles regarding their access to the labour market [21; 29]. Grant refers to various research studies related to human capital theory, which show the persisting undervaluation of foreign qualifications and work experience leading to higher losses of income for immigrants than in the past [22; 23; 24; 8]. Further studies [25, 24] show that the reasons for the income differences are the undervaluation of their credentials as well as the discrimination of immigrants. Overall Grant perceives human capital theory as appropriate to analyse and document the obstacles of an economic integration of immigrants into the labour market [22: 137f]. At the same time it is problematic that there are only few empirical accesses to validate the assumptions of both theories [26: 99].

The central postulate of human capital theory [27; 28] is that an increasing supply of educational programs is the reaction towards the demand for skilled work. Due to this individuals will try to achieve higher educational degrees until the opportunity costs to reach them exaggerate the benefit related to owning them [28]. It is assumed that education provides skills to individuals, which they use in their employment and which make them a productive and functional member of society. Accordingly individuals who have reached a lower educational level also remain on a lower level of employment [26: 100]. Human capital theory was often questioned regarding its argument that education leads to the acquirement of skills and thereby improves the productivity of individuals [29; 30].

The central theoretical approach which questions human capital theory is the one of credentialism [26: 102]. The range of credentialism reaches from the assumption that credentials do not contain any information value at all until the assumption that the required educational level needed for a certain job increased over time. For this reason credentialism constitutes a breach towards human capital theory [31:455].

Credentialism was mainly affected by Collins [32]. According to him there is only a weak relationship between credentials of the educational system and the skills, which are required for an employment [32]. Collins [33] points out the high importance of the labour market regarding the adjustment of the value of education and credentials. He assumes that employers use credentials to give better jobs to better educated employees – but not necessarily because they have better skills or are more productive but because they have more education, which is documented by credentials. This causes the necessity for the educational system to supply better educated individuals [33]. Credentialism is a mechanism of social closure [34] and thereby represents an approach to explain discriminatory recruiting decisions.

3. Methodology, data sets and operationalization

Using a mixed method approach (quantitative analyses, case studies and expert interviews) the complete project identifies approaches and methods that employers and other stakeholders use to make decisions regarding foreign qualification recognition. This paper focuses on parts of the quantitative analyses of the PIAAC data using OLS regression models to investigate if the assumptions of the human capital theory or the theory of credentialism apply to the Canadian labour market. Focusing on variables representing the migration status the analyses compare wages of individuals. The analyses are conducted using the Canadian PIAAC data set 2012. These data were collected between November 2011 and June 2012. A representative sample of over 27,000 adults aged 16 to 65 across Canada completed the computer-based survey through in-home interviews. Besides this standard survey mode individuals without computer experience had the option to do a paper-and-pencil interview. Samples were selected in sufficient numbers to provide statistically reliable results not only for Canada as a whole, but also for each province and territory. In addition, indigenous peoples, immigrants, and official-language minority populations were oversampled to provide detailed information about these groups (http://www.piaac.ca/). The Canadian data set offers a sample weight, which is used in the following calculations.

Besides sociodemographic characteristics the data set contains information on educational attainment, work experience, migration status and
hourly wages. In the public use file for Canada earnings data are reported only in deciles. Information on the median wage of each decile was obtained and accordingly the decile median was assigned to each respondent belonging to the respective decile. The estimation sample excludes individuals, who are self-employed, because their qualifications and competences are neither evaluated by an employer nor rewarded by paying them a certain wage. Furthermore the analyses are limited to individuals who work more than 30 hours per week, to have a sample of individuals which have a strong labour-force commitment.

In concrete the presented OLS-regressions use the hourly wages as dependent variable. According to human capital theory, individuals acquire their skills either visiting educational institutions or in the workplace respectively on-the-job. Education is an investment into their human capital and according to the theory leads to a higher income in the labour market. Assuming a competitive labour market an individual’s income represents its occupational attainment depending on its abilities and competencies. For respective empirical analyses Mincer developed a regression model [35]. Within his model he develops the statistical relationship between market wages, education and experience. The standard form of the Mincerian wage regression is: \[ \ln(y) = \beta_0 + \beta_1 X + \beta_2 X^2, \]
where \(y\) is the income (\(y_0\) is the income of an individual with no education and no experience), \(S\) is the years of schooling, and \(X\) is years of potential labour market experience.

A basis model referring to this Mincerian wage regression is here used to analyse the determents of individuals’ income. Based on this model in a next step variables representing the migration status of an individual are successively included in the model to test if they add variance to the prediction of hourly wages. Those variables are the individual’s country of birth, the country where the highest qualification was acquired and the parents’ country of birth. Within a further model the interaction effect of the individuals’ migration status and their work experience is included. As the PIAAC-data set contains a variable, giving information about the region, where the respondents acquired their highest qualification, an interaction effect between the migration status and the educational attainment of the individuals is not necessary to consider. For all models robust standard errors are calculated.

### 4. Results and conclusion

The data (all reported with weights) show some minor discrepancies for the above sample from the full sample. While the share of females is 50.0% in the full sample it is only 44.62% in the analysed one. The share of respondents born abroad, which is 25.31%, is comparable to the share in the full sample (25.76%). Furthermore 15.43% of respondents in the analysed sample acquired their highest qualification outside of Canada, while this is the case for a share of 15.86% of the full sample. The following table 1 gives an overview of the means and standard deviations of selected variables used in the analyses.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. dev.</th>
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<tbody>
<tr>
<td>Gross hourly wage (CAD)</td>
<td>25.58</td>
<td>11.29</td>
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<tr>
<td>Years of experience</td>
<td>18.74</td>
<td>11.53</td>
</tr>
<tr>
<td>Numeracy skills</td>
<td>272.26</td>
<td>50.34</td>
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</tbody>
</table>

The calculated base model 1 referring to the Mincerian wage regression explains 27% of the variance of hourly wages. All variables included have significant effects. Being female has a negative influence (-3.925), while a higher educational attainment has a positive effect (3.218). In model 1 educational attainment is calculated in ISCED-steps taking the ISCED-levels as continuum starting from ISCED 1 or lower up to ISCED level 7. Here the effects show the additional average wage for one ISCED-level higher. Regarding the work experience the calculated model confirms the assumption of the Mincerian model, which presumes a positive effect of the years of work experience (0.672) and a negative effect of the squared years of work experience (-0.010). Table 2 shows this model as well as all further models, which take into account variables representing the respondents’ migration status, interaction effects and finally the individuals’ numeracy skills.

Model 2, which is also referring to the classical Mincerian wage regression, shows similar effects as model 1. But this model better illustrates the effects of different educational levels on hourly wages. In the model ISCED-level 4 was taken as reference category. In comparison to level 4 an individual only qualified on ISCED-level 1 or lower earns less (-6.781). On the other side of the range an individual holding a qualification on ISCED-level 7 earns significantly more than an individual qualified on reference level 4 (11.774). The inclusion of the years of schooling does not improve the model. That is the reason why the following calculations include the highest attained qualification instead, because this variable gives more detailed information about the income effects of different educational levels.

The variables representing the individuals’ migration status are each added to model 2 separately to see how they affect hourly wages and if they add further variance to the model. The respective models 3, 4 and 5 show that they vary regarding the strength of their effects and also regarding the significance of those effects.
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<td>Both parents born in Canada (ref. category)</td>
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<td>One parent born outside Canada</td>
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<td>Ed. Attainment*born outside Canada</td>
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<td>Years of work exp.*born outside Canada</td>
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<td>Numeracy (mean of plausible values)</td>
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<td>(0.671)</td>
<td>(0.633)</td>
<td>(0.757)</td>
<td>(0.625)</td>
<td>(0.635)</td>
<td>(1.021)</td>
<td>(0.865)</td>
<td>(1.322)</td>
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<tr>
<td>R-squared</td>
<td>0.27</td>
<td>0.28</td>
<td>0.30</td>
<td>0.32</td>
<td>0.29</td>
<td>0.32</td>
<td>0.32</td>
<td>0.35</td>
</tr>
</tbody>
</table>

Notes: robust standard errors (in parentheses); n=12,872; significance: no superscript=p<0.01; *p<0.05; +=not significant;
Data Source: PIAAC 2012.
In model 3 respondents’ country of birth is included. This variable adds some variance to model 2 (0.30 in comparison to 0.28). Furthermore the negative effect of being born in another country than Canada (-3.397) is statistically significant in this model. The other effects stay comparatively constant. In model 4 instead of the country of birth the region where the respondents attained their highest qualification is included. This variable adds comparatively more variance to model 2 than the respondents’ country of birth does (0.32 in comparison to 0.30). The results show that the acquirement of the highest qualification outside of Canada has a negative income effect for all regions. However there is variance – the following regions have slightly sloping negative income effects: Arab States and Sub-Saharan Africa (-6.311), Central and Eastern Europe (-6.449), Asia and the Pacific (-7.166), Latin America and the Caribbean (-7.445).

In comparison the income penalty for people who have acquired their highest qualification in North America or Europe, is relatively small (-2.450). As in model 3 all variables have statistically significant effects in model 4.

Model 5 uses the parents’ country of birth to operationalize the migration status of the respondents. This variable adds the lowest share of explained variance to model 2 (0.29 in comparison to 0.28). The reference category for this variable is the case, in which both parents were born in Canada. In comparison the birth of both parents outside of Canada has a significantly negative income effect for the individuals (-2.340). In case one parent is born abroad the income effect is close to zero (-0.008) and not statistically significant, which can be explained by the little number of respondents in the analysed sample, who fall into this category.

After including all variables, which represent the individuals’ migration status, successively into the model in a further step a full model containing all migration variables at the same time is calculated. This model 6 adds most variance to model 2 (0.32 in comparison to 0.28). But a comparison to model 4, in which only the region where the respondents acquired their highest qualification was included, shows that this model explains the individuals’ income almost to the same extent as model 6 does (0.3168 for model 4 in comparison to 0.3174 for model 6). A further disadvantage of model 6 is that the effects of the respondents’ country of birth as well as their parents’ birth country are not statistically significant. As a consequence model 4 can be identified as the most favourable one, because this variable explains the income effect of the individuals’ taking into account their migration status best. The results suggest that the region where the highest qualification was acquired determines the migrants’ income more than the fact that they were born in another country than Canada. Furthermore the fact that the parents birth country is outside of Canada does have a negative income effect, considering the above described statistical limitations, whereas this effect is weaker than the influence of the region where the highest qualification was acquired.

Finally interaction effects between the migration status and the variables of the standard Mincerian wage regression are taken into account. The results show that there is a small positive interaction effect between the country of birth (outside Canada) and the work experience of an individual. But there is a negative interaction effect between the fact of being born abroad and the educational attainment (-0.339), which confirms the above results. Overall the models 4, 6 and 7 explain most variance of hourly wages and contain only variables, which are statistically significant.

Against this background in a final step the plausible values, which the PIAAC data set provides for the three dimensions literacy, numeracy and problem solving are used to further improve the model. Due to the fact that these three dimensions are highly correlated only one of them is included in the model to avoid multicollinearity. The respondents’ score in numeracy is chosen because numeracy test items require reading as well as mathematical and reasoning competencies and therefore represent broader cognitive skills than both other dimensions do [36]. Within the calculations the mean value of all ten plausible values for numeracy skills is taken into account. The results show that including the respondents’ score in numeracy adds further variance to the model (0.35 in comparison to 0.32) and has a positive income effect (0.050).

Overall the findings confirm the discrimination of immigrants on the Canadian labour market regarding their income due to the foreign acquirement of their qualifications. Finally, the results provide indications regarding the explanatory power of the above theories towards the entrance to the labour market and the meaning of educational credentials and work experience for immigrants. In concrete the results suggest that the acquisition of the highest qualification outside of Canada is a stronger disadvantage on the Canadian labour market than being born outside of Canada, judging by the achieved hourly wage. Furthermore the results indicate that there seems to be a smaller wage penalty for foreign work experience than for foreign qualifications. The latter has to be relativized, because the Canadian PIAAC data set hardly allows a calculation of exact years of foreign gained and Canadian work experience.

5. References


The Interplay of Employability Skills, Academic Achievement and Selected Demographic Variables among Undergraduate Students at the United Arab Emirates University

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United Arab Emirates University, United Arab Emirates

Abstract

This study was an attempt to investigate the interplay of students’ employability skills and academic achievement of an undergraduate student population. A total of 446 randomly selected (98 males and 347 females) students participated in the study. Employability Skills Inventory (ESI, 2010) was used to identify student’s Employability Skills and academic achievement was determined by students GPA. Pearson Correlation, T-test, ANOVA and regression analysis were conducted to examine the relationships and differences between research variables. The results showed significant relationship between employability skills and student’s academic achievement and age. Significant differences were also identified between employability skills across selected demographic variables. In addition, regression analysis indicated that academic achievement, students’ gender, college, and residential area contributed significantly to the variance of their employability skills. The findings underscored the need for both university faculty and administrators to explore methods that can improve student’s employability skills required by employers in order to enhance their competitiveness in the labor market.

1. Introduction

A number of studies show a growing discrepancy between higher education and labor market demands [2], [21], [9], [27], [23], [11], [39], [1], [25]. Employers are often critical of this incongruity and are quick to highlight the lack of practical skills among graduating students. Across various industries, when asked to complete surveys that assess their opinions of the skills of newly university graduates, employers tend to agree that there is a widening gap between what students are taught in universities and their readiness to enter the competitive job market. Many of these employers point to a lack of important skills that they believe to be necessary for a successful job interview, job attainment, and efficiency [31], [22], [32].

A recent headline, “skills gap fuels rise in jobless youth,” of an article that appeared in The National, a popular daily newspaper in the United Arab Emirates (UAE) and other Gulf Cooperation Council (GCC) countries, highlighted similar sentiments and further underscored the aforementioned discrepancies between higher education and the job market. The article reported the results of surveys and interviews by a cross section of employers which point to the existence of a gap between what students are taught and what potential employers require, that accounts for a significant increase in regional youth unemployment [40]. Although the article focused on the UAE and other GCC countries, this phenomenon is not limited to this region per se, rather, it is a problem that also impacts the global market place [38], [5], [22].

Studying employers and instructors perceptions of employability skills, Singh, et al [31] stressed the need for universities to prepare students according to the needs of employers. Likewise, after a comprehensive review of unemployment rates among Taiwanese graduates, Chih-Chun [10] recommended that Taiwanese universities design and offer diverse practical classes and credential programs that meet both the needs of the undergraduates and the demands of the industrial sector. Consequently, much of the literature that looks at the marketplace and the preparation of employees tend to focus on individuals employability skills.

In the present work, the authors examined the interactions of two multifaceted constructs, student’s employability skills and Academic Achievement, which are both related to cognitive and social skills that are similarly influenced by observation, motivation, modeling, and other environmental factors. Subsequently, the study was based on Social Cognitive Theory [3] as the theoretical framework due to its ability to explain these two constructs [26]. Social Cognitive Theory (SCT) refers to a psychological model of behavior that emphasize that learning occurs in a social context and that much of what is learned is a product of a continuous interaction between cognitive, behavioral, and contextual factors. SCT has been applied broadly to such diverse areas of human functioning as career choice, organizational behavior, athletics, as well as mental and physical health [15]. In the current study, we assume that the students perceived employability skills (social and cognitive) are likely to have strong connection to their academic achievement (cognitive, behavioral) and environmental factors (their
demographic characteristics) such as students’ major, location, and year of study, etc.

In a general sense, employability refers to one’s ability or preparedness to gain employment. Chen [9], Boden and Neveda [6] defined employability as a set of abilities that enable individuals to gain better employment and advance in a career. These abilities include achievements, understanding, and personal qualities. As noted by Bernston [4], everyone, at some point, has to consider his or her possibilities of finding a job. So, whether it’s during the first entry into the job market, later in one’s life, or from student to employee, employability skills are important. However, like any other broad concept, employability has no single consensus on how it should be viewed [5]. According to Bernston [4], in a general sense, it could be said that employability reflects people’s possibilities of acquiring employment.

Further exploration of employability concept in the literature shows that it has been studied in various contexts such as investigating how graduate students should enter the labor market [18], [19], how to get the unemployed back to work [13], [24], and how to best establish the disabled in the labor marked [8].

Furthermore, Singh and Singh [32] investigated a number of employability skills among Malaysian graduates and examined how each of the employability skill was rated by both employers and graduates. The findings showed that the level of importance placed on employability skills by both employers and graduates was not much different. The authors, however, noted a significant difference between employers in terms of their ranking of graduates’ employability skills and younger employers were found to be more accepting of graduates’ employability skills. The findings also indicated that employability skills are not specific but are skills which “cut horizontally across all industries, and vertically across all jobs such as basic skills, knowledge, attitudes, that suggest ones’ readiness to enter and be productive in the workplace.

Student’s academic achievement is the other major concept examined in this study. According to Guskey [17], academic achievement is the basis of nearly every aspect of education. It gives direction to all educational improvement efforts, provides the foundation for education accountability programs, and serves as the primary outcome variable in most educational research studies. Similar to employability skills, academic achievement is a complex and multifaceted construct. Irrespective of its prominence in research, there is no consensus on its definition and how it is best measured. Nevertheless, there are some general agreements that academic achievement is the anticipated favorable outcome of education, and it is usually assessed by examinations and its overall assessment is continuous.

Similarly, the literature indicated that academic achievement has been explained in terms of purely academic dimensions, such as ability, lack of ability, or good or poor study habits [33], [30]. However, growing evidence has indicated that psychosocial dimensions may be as important and perhaps more important to academic success than many of the traditional cognitive or demographic dimensions, such as standardized test scores, race, genetics, socioeconomic status (SES), parents education level, and school environment [28], [29], [34]. It is closely related to grades or test performance, typically measured by one’s grade point average (GPA) or scores on standardized achievement tests [29], [33]. Still other researchers such as Braxton [7] have defined the concept of academic achievement in higher education as mastery of subject matter.

For the purpose of this study, academic achievement was operationalized as the participants cumulative Grade Point Average (GPA). A GPA is a number that represents the average of a participant’s grades during his or her time at a particular Institution. Most high schools and nearly all colleges and universities use a four point system, where numerical values are applied to grades as follows: A = 4.0, B = 3.0, C = 2.0, D = 1.0, and F = 0. The GPA represents the average number of grade points that the student earns for each graded course. Grade points are points per course credit assigned to a passing grade, indicating the numerical value of the grade. Dividing a student’s total grade points earned by the total course credits attempted determines a student’s GPA. Courses in which a student does not receive a grade, such as pass or fail and audited courses, do not factor into the GPA calculation.

When employers recruit new staff, many of them tend to think that high GPA is an indicator that a candidate has the necessary skills for a position in waiting. Consequently, they may select candidates with high GPAs while overlooking other important skills. On the other hand, as noted above [40], employers tend to complain that university graduates lack the required employability skills necessary for best performances at work. This study is, therefore, an attempt to examine to what degree academic achievement can predict employability skills among university students. Specifically, the aims of this study were (1) to identify the relationship between students’ employability skills and some demographic variables. (2) to examine the differences in Employability skills across gender, college, socio economic status, and permanent residence, among UAEU undergraduate students. (3) to examine the relationship between academic achievement and employability skills scores among UAEU undergraduate students and (4) to determine the contribution of academic achievement in the
2. Methods

2.1. Research design

This research was a correlational design conducted to examine the interplay between employability skills, academic achievement and selected demographic variables. The fourth level courses (eg. PSY 413) that were attended by senior students were identified, listed, and random cluster sampling was used to select the research participants. Twenty two clusters were selected randomly and a total 446 undergraduate students from nine colleges participated in the study. The sample encompassed 75.5% (336) female and 24.5% (109) male students ages between 20-25 years old, and their mean age was M = 21.73 (SD=1.264) years. In as much as the employability skills are concerned, 3rd, 4th and 5th year students were targeted. Specifically, the participants included 32.1% (143) third year, 53.8% (241) fourth year, and 14.1% (62) fifth year students. Table 1 presents sample distribution across students gender, college and study year. From the nine university colleges, students from Humanities and Social Sciences were 27.5% (121), Information technology 8.1% (36), Engineering 15.5% (69), Law 10.1% (45), Education 6.7% (30), Science 9.4% (42), Business and Economics 12.6% (56), Food and Agriculture 4% (18), and Medicine and Health Sciences 6.3% (28). In terms of years of study, about 32% (143) of participants were in their third year, 53.8% (240) fourth year and 14.1% (63) were fifth year students as indicated in Table 1. Almost 40.8% (182) are living in urban areas, 25.3 % (113) from suburban areas, and 32.5 (145) living in villages. Those who identified themselves as coming from high income families were 23.5% (105), middle income 37.9% (169), and 36.8% (164) identified themselves as coming from low income families.

Table 1. Sample distribution across students’ gender, college and study year

<table>
<thead>
<tr>
<th>College</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
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<tbody>
<tr>
<td>Humanities &amp; Social Sciences</td>
<td>2.09</td>
<td>21.2 (21)</td>
<td>25.3 (23)</td>
<td>57</td>
<td>67</td>
<td>21</td>
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<td>Information Tech.</td>
<td>2.8 (19)</td>
<td>5.8 (28)</td>
<td>8.6 (36)</td>
<td>14</td>
<td>18</td>
<td>4</td>
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<td>Engineering</td>
<td>7.2 (72)</td>
<td>8.3 (77)</td>
<td>15.5 (89)</td>
<td>25</td>
<td>33</td>
<td>12</td>
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<tr>
<td>Law</td>
<td>3.4 (33)</td>
<td>6.7 (30)</td>
<td>10.1 (43)</td>
<td>14</td>
<td>25</td>
<td>2</td>
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<tr>
<td>Education</td>
<td>6.7 (60)</td>
<td>6.7 (60)</td>
<td>7</td>
<td>23</td>
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<tr>
<td>Science</td>
<td>4.7 (41)</td>
<td>4.7 (41)</td>
<td>9.4 (82)</td>
<td>18</td>
<td>20</td>
<td>4</td>
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<tr>
<td>Business &amp; Economics</td>
<td>2.0 (9)</td>
<td>10.6 (49)</td>
<td>12.6 (58)</td>
<td>14</td>
<td>36</td>
<td>6</td>
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<tr>
<td>Food &amp; Agricultural</td>
<td>1.1 (10)</td>
<td>2.2 (11)</td>
<td>3.3 (18)</td>
<td>6</td>
<td>11</td>
<td>1</td>
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<tr>
<td>Science</td>
<td>1.1 (1)</td>
<td>5.2 (23)</td>
<td>6.3 (28)</td>
<td>13</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Medicine &amp; Health Sciences</td>
<td>1.1 (1)</td>
<td>5.2 (23)</td>
<td>6.3 (28)</td>
<td>13</td>
<td>8</td>
<td>7</td>
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<tr>
<td>TOTAL</td>
<td>24.1 (205)</td>
<td>75.3 (640)</td>
<td>100 (409)</td>
<td>143</td>
<td>240</td>
<td>63</td>
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N=446

2.2. Measurements

The Employability Skills Inventory (ESI, 2010) was used to measure students’ employability skills. The employability skills inventory encompasses 80 items that constitute eight dimensions, namely: basic skills, thinking skills, personal qualities, resource management skills, interpersonal skills, information management skills, system management skills, and technology use skills. Likert scale is used to measure the participants’ response to each item. The inventory was piloted among 63 students to ensure its clarity and cultural suitability. The result of the pilot study indicated that items were clear to students and no cultural concerns were raised. The reliability of the pilot study was very high as indicated by Cronbach alpha α: .92 (M = 181, SD= 18.34).

In the actual study, the reliability index was even higher as indicated by Cronbach alpha coefficient of α: .95. This reliability coefficient indicated that the Employability Skills Inventory was reliably fit for use in the UAEU population. Responding to this questionnaire takes about 20 to 25 minutes. Scoring ESI ranges between 10 to 30 for each dimension. Each of the eight dimensions is calculated by adding up the items scores that make up that dimension. The score ranging from 24 – 30 is considered high, 17 - 23 is considered an average and from 10 -16 indicates low employability skills.

On the other hand, academic achievement was represented by students’ Grade Point Average (GPA). The system at UAEU is similar to that of North American universities where maximum GPA is 4.00. The sample minimum GPA scores was 2.20 and maximum was 4.00, of which the mean score was M=2.95 (SD=.399). The researchers assumed that the higher the GPA the higher the student’s academic achievement. The research data was collected during summer 2014.

2.3. Analysis

The data was analyzed using SPSS version 12. Prior to data analysis, the data was explored for accuracy, missing data, and statistical assumptions such as outliers, and normal distribution. Descriptive statistics were employed to describe the sample characteristics and inferential analysis was used to study the relationship between the variables. Pearson correlation was used to study the relationship between the major research variables and age. T-test and ANOVA were used to identify the employability skills differences between selected demographic variables (age, gender, college, socioeconomic status, and permanent residence). Finally, a stepwise regression analysis was performed to predict the contribution of academic achievement, age, gender,
college, and permanent residence on student’s employability skills. The research survey response rate was 89% (446) in which most questionnaires were completed in its entirety. However, twelve students did not report their GPA. In addition, some questionnaires were not returned and a small number was insufficiently completed, and therefore they were not included in the analysis.

3. Results

3.1. Relationship between students’ age and their employability skills

The relationship between students’ employability skills and their age was examined. In this, employability skills dimensions were the dependent variables and age was an independent variable. The Pearson correlation was used to examine the relationship between these variables as indicated in Table 2. Results suggested significant relationship between students’ age and basic skills, \( r = .108^* (p \leq .05) \); resource management, \( r = .112^* (p \leq .05) \); information skills, \( r = .101^* (p \leq .05) \); and interpersonal skills, \( r = .104^* (p \leq .05) \). The current results replicated the previous findings by Ying-Ju and Leeb (2011). In contrary, no significant relationship was found between students’ age and thinking skills, and personal qualities.

3.2. Gender differences in employability skills and academic achievement among UAEU undergraduate students

A series of independent t-test were conducted to identify the gender differences in employability skills and academic achievement among UAEU undergraduate students. Table 3 presents mean, standard deviations and t-test scores of gender differences in academic achievement and employability skills dimensions. The results showed that mean academic achievement of the two genders were almost equal, \( M= 2.94 \) (SD=0.399) and \( M=3.01 \) (SD=0.44) for female and male respectively. Consequently, the t-test did not show any significant gender differences in academic achievement. These results were not supported by literature in which Danial, Bakar and Mohamed [12] found significant correlation between gender and academic achievement.

When gender differences across employability skills were examined, the means scores indicated significant gender differences in basic skills (\( M = 23.22, SD = 3.10 \)) for male and (\( M = 24.03, SD = 3.86 \)) for female student’s; \( t (440) = 1.917, p = 0.50 \). Significance gender differences in personal qualities were also observed in which females scored higher mean (\( M = 24.12, SD = 3.41 \)) compared to males (\( M = 23.01, SD = 3.17 \)); \( t (440) = 2.89, p = 0.004 \). There was also a significant difference between male (\( M= 22.26, SD= 3.04 \)) and female (\( M=23. 29, SD= 3.58 \)) resource management skills; \( t (440)=2.60, p = 0.10 \).

The other significant mean difference was observed between male (\( M= 23.36, SD= 3.44 \)) and female (\( M=24. 26, SD= 3.80 \)) interpersonal skills, \( t (439)=2.618, p = 0.009 \) and system management in which male (\( M= 22.99, SD= 3.33 \)) and female (\( M=24. 09, SD= 3.68 \)) scores were significantly different; \( t (439)=2.66, p = 0.008 \).

3.3. Employability skills differences across college, socio economic status, and permanent residence among UAEU students

Table 4 shows students’ employability skills differences across university colleges. The results suggested significant differences between the students from different colleges in basic skills, \( F (8), 2.386, p = .016 \), thinking skills, \( F (8), 2.201, p = .026 \), resource management skills, \( F (8), 2.880, p = .004 \); Information skills, \( F (8), 2.605, p = .009 \) and system management skills, \( F (8), 2.576, p = .009 \).
This was an expected difference as every college has a specific emphasis due to their major studies.

Table 4. The Analysis of variance (ANOVA) of employability skills differences across colleges, permanent residence and socio-economic status

3.5. The contribution of academic achievement (GPA) in the variance of students’ employability skills after controlling for demographic variables

The final research question aimed to determine how much does academic achievement explain in the variance of students’ employability skills after controlling for demographic variables. In this case, a series of the stepwise multiple regressions were performed to predict employability skills from academic achievement, after controlling for the influence of the demographic variables. The five employability skills dimensions that correlated significantly with academic achievement (Basic Skills, Thinking Skills, Personal Qualities, Resource Management skills, and Interpersonal Skills) were regressed as criterion variables in sequence and academic achievement, gender, age, college, permanent residence and SES as factor variables. In each regression analysis, one employability skill dimension was the criterion variable whereas academic achievement, and other demographic variables were considered as factors. Age was not included in regression analysis insofar as the age difference in the research sample was very mild and did not significantly correlate with some of the employability skills dimensions (eg. M= 21.60, SD= 1.29 and M= 21.80, SD= 1.30 for male and female, correspondingly). Table 5 presents the contribution of each predictor variable as suggested by regression analysis. First, basic skills was entered as criterion variable and among the predictors, GPA, F (1, 419 ) = 18.208, p≤. 05; gender, F (2, 418 ) = 5.432, p≤. 05; and permanent residence F (3, 417 ) = 11.92, p≤. 05 emerged as significant predictors of basic skills, accounting for 4.2%, 1.2% and 1.3% respectively in the variability of basic skills. Thinking skills dimension followed as a second regression analysis, and the results showed that GPA, F (1, 419 ) = 8.969, p≤. 05 and gender, F (1, 418 ) = 7.045, p≤. 05 predicted significant variability in students thinking skills. Collectively, GPA and gender accounted for 3.3% in the variance of students thinking skills but GPA alone contributed 2.1% as indicated in Table 6. Further, the third regression results indicated that GPA and gender showed significant contribution in personal qualities dimension of employability skills, F (1, 419 ) = 9.540, p≤. 05 and F (1, 418 ) = 9.540, p≤. 05. Again the students’ The GPA and gender accounted for 4.4% in the variability of students’ personal qualities. Although gender was a stronger predictor of personal qualities, GPA accounted for more than 2% in the variability of students’ personal qualities. In the fourth regression analysis, resource management was examined and the results indicated that student’s GPA, F (1, 419 ) = 11.041, p≤. 05, gender F (2, 418 ) = 10.375, p≤. 05 and college, F (3, 417 ) = 8.380, p≤. 05 contributed significantly in
the variance of student’s resource management skills. The GPA alone contribute 2.6% whereas gender contributes 2.2% and college explained only 1% in the variability of resource management skills. Fifth, when interpersonal skills dimension was regressed, GPA, F (1, 419) = 11.986, p≤.05 and gender, F (2, 418) = 10.754, p≤.05 were indicated as potential contributors in the variance of this employability skill in which GPA is accounted for 2.8% and 2.1% for gender. To epitomize, these regression analysis results have shown that students’ GPA, gender, permanent residences, and college are accounted for variability in their employability skills. Specifically, these results indicated that GPA contributed significantly in the variability of five employability skills dimensions (basic skills, thinking skills, personal qualities, resource management skills, and interpersonal skills). Furthermore, GPA and gender were the only factors accounted for variance in thinking skills, personal qualities, and interpersonal skills.

### Table 5. A summary of stepwise regression analysis results of variables predicting employability skills dimensions

<table>
<thead>
<tr>
<th>Steps &amp; variables</th>
<th>B</th>
<th>β</th>
<th>R²</th>
<th>F</th>
<th>Sig. (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic skills</td>
<td>GPA</td>
<td>1.904</td>
<td>.204</td>
<td>.042</td>
<td>18.208</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>-.987</td>
<td>-.112</td>
<td>.012</td>
<td>11.92</td>
</tr>
<tr>
<td></td>
<td>Permanent residence</td>
<td>-1.06</td>
<td>-.118</td>
<td>.013</td>
<td>9.998</td>
</tr>
<tr>
<td>Thinking skills</td>
<td>GPA</td>
<td>1.348</td>
<td>.145</td>
<td>.021</td>
<td>8.969</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>-.923</td>
<td>-.108</td>
<td>.012</td>
<td>7.045</td>
</tr>
<tr>
<td>Personal qualities</td>
<td>GPA</td>
<td>1.241</td>
<td>.143</td>
<td>.021</td>
<td>8.958</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>-1.234</td>
<td>-.152</td>
<td>.023</td>
<td>9.540</td>
</tr>
<tr>
<td>Resource management</td>
<td>GPA</td>
<td>1.402</td>
<td>.160</td>
<td>.026</td>
<td>11.041</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>-1.238</td>
<td>-.148</td>
<td>.022</td>
<td>10.375</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>.201</td>
<td>.099</td>
<td>.020</td>
<td>8.310</td>
</tr>
<tr>
<td>Interpersonal skills</td>
<td>GPA</td>
<td>1.559</td>
<td>.167</td>
<td>.028</td>
<td>11.986</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>-1.297</td>
<td>-.149</td>
<td>.021</td>
<td>10.734</td>
</tr>
</tbody>
</table>

Note: n = 420 (basic skills, Thinking skills, Resource management, personal qualities), n = 419 (Interpersonal skills, and technology use).

### 4. Discussion

The objective of this study was to identify the relationship between employability skills and academic achievements of United Arab Emirates University undergraduate students. To better understand the interplay between the two aforementioned variables, some demographic variables such as age, gender, college, socio economic status, and permanent residence were also examined, to determine whether the students’ characteristics have any effect on the research variables. This research was therefore conducted to examine the interplay between employability skills, academic achievement and selected demographic variables. The first objective of this study was to identify the relationship between students’ employability skills and some demographic variables. The results suggested significant relationship between students’ age and basic skills, resource management, information skills, and interpersonal skills. The current results replicated the previous findings by Ying-Ju and Leeb (2011).

However, there was no significant relationship between students’ age and thinking skills, and personal qualities. The similarities in thinking skills and personal qualities among students of different age in these findings can be attributed to the collective nature of their society.

The second research objective was to examine the differences in Employability skills across gender, college, socio economic status, and permanent residence among UAEU students. The examination of gender differences between employability skills and academic achievement of UAEU undergraduate students found the mean academic achievement of the two genders were almost equal. Nonetheless, these results were not supported by literature in which Danial, Bakar and Mohamed [12] found significant correlation between gender and academic achievement. These findings demonstrate the UAE emphasis on providing equal opportunities to their students regardless of their gender.

Regarding students’ employability skills differences across university colleges, the results suggested significant differences between the students from different colleges in basic skills, thinking skills, resource management skills, Information skills, and system management skills. These findings were anticipated due to the variations in curriculum content across colleges. One of the university’s goal is to equip all students with necessary employability skills that will enable them to become competitive in the job market. The differences in employability skills between colleges as depicted in these findings speaks to the diversity within the colleges, as they strive to promote their individual specialties/fields of study. As a result of this diversity between the colleges, students are able to gain a broader knowledge base, thus meeting the overall vision of the university.

In examining the differences in students’ employability skills across their socio-economic status, socio-economic status was divided into three categories namely: high income family, medium income family, and low income family. The results indicated significant differences in information Skills, and technology use between the socioeconomic groups. Both technology use and information skills involve the ability to use technology and critical thinking skills. The technology use and information skills differences among student of different socioeconomic background was also reported by Tondeur, J., Sinnaeve, I., Van Houtte, M., van Braak, J. [35] who found that SES affects the computer-use profile.
moderately. These findings were also anticipated due to the aforementioned diversity within the university. The differences in employability skills between students’ permanent residences (village, suburban, and urban areas) were examined. The results suggested that only basic employability skills and system management skills were significantly different among the students from the three permanent residences.

The third research objective was to examine the relationship between students’ academic achievement as represented by their GPA and employability skills scores among UAEU undergraduate students. The findings suggested significant relationship between students’ academic achievement and some employability skills dimensions, namely basic skills, thinking skills, personal qualities, resources management skills, interpersonal skills, and technology use. The findings show a positive correlation between employability skills and academic achievement which suggests that students with high GPA are more likely to also have solid employability skills.

Finally, the fourth research objective was to determine the variance of employability skills as explained by academic achievement after controlling for demographic variables. A series of the stepwise multiple regressions were performed to predict employability skills from academic achievement, after controlling for the influence of the demographic variables. The five employability skills dimensions that correlated significantly with academic achievement (basic skills, thinking skills, personal qualities, resource management, and interpersonal skills) were regressed as criterion variables in sequences and academic achievement, gender, college, permanent residence and SES, as factor variables. The finding suggested that academic achievement and gender are credible predictors of the following categories of employability skills: basic skills, thinking skills, personal qualities, resource management skills, and interpersonal skills. The findings have shown that among all the possible predictors of employability skills, academic achievement is the most profound. More specifically, statistics have suggested that academic achievement contributes the largest proportion in the variability of students’ employability skills.

5. Implications

The findings of this study have revealed very important information that supports the vision and mission of the UAEU. The findings can also be useful in the improvement of some areas of undergraduate student’s employability skills, so that they can be more competitive in the job market. It was found that students have acquired many of the employability skills that are necessary for success in the job market. Out of eight employability skills, a total of five (basic skills, thinking skills, personal qualities, resource management, and interpersonal skills) have emerged high among UAE undergraduate students who have high GPAs. These findings imply that UAE undergraduates have developed many of the employability skills that the research suggested are needed to be successful at the work place, by the time they graduate from their respective programs. However, although the research findings suggested that students are well trained in many of the employability skills, there is a need to improve in others, such as system management, information skills, and technology use. Another interesting finding was in the area of academic achievement, in which the study suggested no gender differences in academic achievement which suggests that the UAEU provides equal and proper opportunities for both male and female students to excel in their studies. Although there was no gender difference in academic achievement, the study findings suggested that in many cases, males seemed to have a wider range of employability skills than their female counterparts. Therefore, there is a need to improve female student’s employability skills to enhance their chances in the job market. Finally, it is important to reiterate the significance of the relationship between higher education and the labor market, as presented in the literature review of this study. So, although this study indicated that UAEU students acquire many employability skills, a solid-ongoing relationship between the UAEU and potential employers, in both the local and national market place, would be of great benefit to the university and its students.

6. Conclusion

The focus of this research was to examine the relationship between academic achievement and employability skills among UAEU undergraduate students. The findings indicated that students who attain high academic achievement as indicated by GPA will also have high degrees of employability skills. Gender differences in employability skills were also highlighted and the study suggested that male students possess a wider range of employability skills than their female counterparts. Future research is recommended in which a larger sample of graduating students participate and the use of more robust methods that can provide additional precise findings.

7. References


Foundation Studies Policy in Australia and New Zealand: Policy Inaction, and Policy in Action

Lindee Conway
Melbourne Polytechnic, Australia

Abstract

How important is policy and strategy about Foundation Studies delivery for educators and learners? Do educators notice changes when made at government policy level? Do learners make the connections about strategy and policy during their classes, or are they, more often, unable to ignore other policies as adult education is linked to skills shortages and welfare payments?

And: what difference does it make if a National Education Department implements strategy actively, or hardly at all?

My ‘work in progress’ report to the CICE conference seeks to compare Australia and New Zealand’s adult foundation skills policies, in relation to adult literacy and numeracy, English-language, multi-lingual policy and welfare-to-work policies. Canadian research and critique will also be included. I will seek to learn from North American educators about their experiences and those of their learners.

Australia has, naturally, a national foundation policy related to adult learning: The National Foundation Skills Strategy (NFSS) [4]. It has been heavily critiqued: described as ‘alienating’ [10] 2016 and having ‘lost momentum’ [1]. In a review requested by the Canberra Government, its policy was described as ‘at risk’ [9]. So, as they say: there are a few issues. My personal observation is that our NFSS has less value to Government than welfare policies, described in Australia as ‘mutual obligation’ [2].

An educator for almost 30 years in Australia, I was awarded a Fellowship from the (Australian) International Specialised Skills Institute to visit neighbouring New Zealand and learn from their actively implemented Adult Literacy and Numeracy Strategy (NZ-TEC 2015-2019). My month-long study tour, in early 2016 was wonderful: an opportunity to observe the energy that accompanies the strong intention of policy-makers. It also gave me the opportunity to compare the Kiwis’ attitudes and Australia's implementation of our own NFSS. It was apparent to me during study tour that New Zealand’s smaller population, geography, and single government; make it possibly better-placed to be more active in cohesive implementation. In comparison, Australia (as with Canada) the complexities of distance, provincial and National Government and languages are evident, immediately.

New Zealand educators and researchers do not wholly share my wide-eyed enthusiasm of their recent strategy developments; and a body of work is now available to look at policy outcomes in considerable more depth [7] [3].

My current research project at Melbourne University study is underpinned by an assumption that policy or strategy is not, always, implemented in an explicitly learner-centred way. My life experience as a Foundation Studies teacher- and now as a senior manager and implementer of policy - has been one of frequently weaving teaching and learning between formal assessment protocols and auditing requirements. The term ‘opposing forces’ is relevant, as it describes complex regulation around Foundation Studies courses and the act of teaching [5]. I also learn from reading Canadian educator-researchers that similar experiences have occurred in your country [6] [8].
So, is it geography, over-government or competing social policies that mitigate against respectful, and engaging learning for adults? Or is it all about cohesive action?

References


Session 5: ICT Developments and Diffusion

Title: How can Social Media create Engaged Learners in the Second Language Classroom of FSL or ESL?
(Author: Natasha E. Feghali)

Title: vLearning – Crescent School’s Solution to 21st Century Peer-tutoring
(Author: Ronald Chow)

Title: Developing information literacy through Web 2.0: A Research Proposal about the Case of Information Evaluation at the Gate of University
(Author: Florent Michelot)
How can Social Media create Engaged Learners in the Second Language Classroom of FSL or ESL?

Natasha E. Feghali
Greater Essex County District School Board and Al-Ghanim Bilingual School Kuwait, Kuwait

1. Scope

Technology, Innovation, Social Media in Education and Second Language Learning.

This Speakers Discussion will focus on the ability for social media to change and enhance the way students engage in learning in the second language classroom whether it be FSL or ESL. As 21st century learners, social media is a life skill and the more we engage in learning around social media in the classroom we develop that fundamental ability. Learning a second language can be challenging and not as relative as one of the core subjects for students as they may not envision a future in that domain. Therefore, creating modern and relative methods of engaging the students creates success for learners and allows the freedom to explore the language. Learning a second language can be quite difficult as well for students who may have been diagnosed with learning disabilities and therefore using social media to connect with other classrooms nationally and globally. Students are able to use the language they are learning in creative ways that give them the ability to utilize their learning and be responsible for their learning. This then creates awareness and enables students to take ownership for their learning as well as brings credibility, creativity and consistency to their learning. Therefore, creating a global classroom for learning in a second language as well as enabling students to engage in collaboration.

2. Objective and Motivation

Whether it's under your auspices or not, students are already using social media to communicate. Using age-appropriate social media tools with students at all grade levels can drive the conversation about how to be a good digital citizen. Digital Citizenship is an important part of learners. The worst-case scenarios you bring up aren't going to happen or not happen because of the tools you use in your classroom. The myth about social media in the classroom is that if you use it, kids will be Tweeting, Facebooking and Snapchatting while you're trying to teach. We still have to focus on the task at hand.

Don't mistake social media for socializing. They're different -- just as kids talking as they work in groups or talking while hanging out are different. Technology and social media create a learning environment that embraces all learning styles yet allows them to enter a global platform. When school begins to mirror real life and actively engages learners through the mediums that they are familiar with, we can see great improvements and engagements. You don't even have to bring the most popular social media sites into your classroom.

You can use Fakebook or FakeTweet as students work on this form of conversation. Edublogs, Kidblog, Edmodo, and more will let you use social media competencies and writing techniques. If you're going to ignore social media in the classroom, then throw out the all the other standards and stop pretending that you're 21st century. Stop pretending that you're helping low-income children overcome the digital divide if you aren't going to teach them how to communicate online. Social media is here. It's just another resource and doesn't have to be a distraction from learning objectives. Social media is another tool that you can use to make your classroom more engaging, relevant and culturally diverse.

When it comes to the field of education, there are a lot of ways that social networks such as Twitter and Facebook can be used to enhance the teaching and learning environment and increase educational relevance. Students use social media every day to communicate and gather information about various topics. So all in all social media is relevant to enrich classroom experience by connecting students with peers around the globe.
vLearning – Crescent School’s Solution to 21st Century Peer-tutoring

Ronald Chow
Crescent School, Toronto, Ontario, Canada

Abstract

Tutoring is often a useful supplement to traditional classroom teaching in Canada. Cross-age tutoring, which involves a tutor a few years older than a tutee, has been reported to be more effective than same-age tutoring, as it promotes responsibility, empowerment and academic performance. However, the current same-age classroom teaching may act as a barrier to cross-age tutoring because the latter requires lots of coordination, preparation and organization. At Crescent School, an all-boys independent school in Toronto Canada, a pilot online cross-age peer tutoring program was launched in September 2014, named Crescent School vLearning. The program was formally assessed one year later to quantitatively gauge its success. 36 questions were randomly selected from the vLearning website, examined for response time and response quality assessed by students and teachers. The fast response times as well as the high quality responses have resulted in the program gaining traction in the school. As vLearning ages and continues to catch-on with students, the team of Upper School tutors will soon need to be expanded to accommodate with the increasing volume of questions.
Developing information literacy through Web 2.0: A Research Proposal about the Case of Information Evaluation at the Gate of University

Florent Michelot

Université de Montréal, Canada
Université du Québec à Montréal, Canada

Abstract

Since the development of computer technology and its astonishingly rapid improvements, infobesity tends to become a challenge to cognitive management. Are “Cognitive overstimulation” and “information overload”, consequences of ICTs, causing the commencement of “a new dark age [instead of] a world of perpetual light” [1]? In addition, because of the emergence of social media, we can be concerned by the “disintermediation” phenomena [2], which is the ability to bypass intermediaries and access information directly [3]: will it result to redesign teacher and librarian roles as transmitters?

Considering this disintermediated but networked new context, the objective of our research is to push forward the contribution of knowledge building within modern literacies, including Transliteracy [4] or Metaliteracy [5].

This research project aims to test the connectivist pedagogical approach in order to develop learners’ Metaliteracy (i.e. information literacy), specifically with regard to information evaluation skills. To this end, the aim is to develop a mixed methodology, based on two case studies in France and Quebec and framed by a social cognitive learning epistemology in the context of which critical thinking is interpreted as a cognitive self-regulation strategy.

By this, we would like to offer to the educational environment some tools to effectively support learners, especially about plagiarism and quality of sources problematic. Furthermore, our research is innovative in the description of ways used by students of pre-university and university levels during the formation of their skills related to information literacy.

References


Session 6: Curriculum, Research and Development

Title: Experiential Learning for Women Abductees of Northern Uganda
(Author: Wesley Adam Stroud)

Title: The 3R’s: Reform, Renew, and Reflect in Initial Teacher Education. An Australian Case Study
(Authors: Christopher Klopper, Donna Pendergast)

Title: Primary School Governance in Bangladesh: A Practical Overview of National Education Policy- 2010
(Authors: Nazmul Islam, Al Mansor Helal)
Experiential Learning for Women Abductees of Northern Uganda

Wesley Adam Stroud
The University of Oklahoma, United States

Abstract

St. Monica’s School of Basic Learning for Women in Gulu, Uganda was started by Sister Rosemary Nyirumbe in 2016. This school is unique in that it focuses on providing educational opportunities for women who were abducted by the Lord’s Resistance Army. Many of these women endured horrendous treatment. Having had their lives and education interrupted they are now returning to their families and communities. St. Monica’s School of Basic Learning for Women seeks to provide primary education for women by centering on increasing literacy in Science, Social Studies, Math and English. This poster presentation will offer a look into the collaborative works of the University of Oklahoma’s College of Education and the Administration and Faculty of St. Monica’s School of Basic Learning for Women.
The 3R’s: Reform, Renew, and Reflect in Initial Teacher Education. An Australian Case Study

Christopher Klopper, Donna Pendergast
Griffith University, Australia

Abstract

The case for agile leadership and responsive innovation in Australian Initial Teacher Education (ITE) through ensuing a three-stage process: reform, renew, and reflect was investigated in this case study. As such, the paper is organised under these three areas. Explicit links between the literature and the mandate for reform is presented. A case study approach then delineates the response to national and local imperatives framed as an opportunity for curriculum renewal. The case study presents the actions enacted to bring about innovative change. This investigation makes a significant contribution by accentuating the inhibitors and enablers encountered during a process of renewal.

1. Introduction

Educational reform is a complex process. Underpinning most educational reform initiatives is ultimately the imperative to improve student learning outcomes [1]. An analysis of twenty school education systems around the world [2] revealed there are eight predictable elements that contribute to reform improvements. These range from understanding where the system is situated in regard to a range of features, through to specific leadership, pedagogic, and structural factors. Importantly, they note that a ‘spark’ is often required to trigger major change and that a “system can make significant gains from wherever it starts and a timeline of 6 years or less is achievable” (p. 14). This spark can be the result of a crisis or a major reform initiative. This pattern is applicable to higher education reform, where opportunities also typically arise due to a ‘spark’ or initiative. What may at first glimpse appear to differ from reform in school settings and tertiary education settings are the time lines involved. However, closer scrutiny suggests that because of the length of the programs involved in tertiary education, the accreditation processes required, and the cultural shifts necessary to engage prospective students, the time commitment may well be very similar. We are interested to explore this facet of reform in tertiary education in this study.

2. Reform

In 2005, Pendergast and colleagues developed a model of key features and time involved in effecting major change in education settings, naming this the Educational Change Model (ECM). This was originally developed for reform processes in Australian middle schooling [3; 4]. More recently it has been used to facilitate state-wide reform of the early childhood sector in Victoria [5] and was the underpinning framework adopted for implementing Junior Secondary reform in Queensland across all government schools in Years 7, 8 and 9 [6]. Although the model was developed for a school education reform scenario, the underpinning principles are equally applicable to business, industry and community reform settings. Furthermore, the ECM has value for an individual, a site or setting, and at the systemic level. At the individual level it can be used to assist people to determine the stage of reform they are operating at by reflecting on their own understandings and practices and mapping this to predictable aspects of the reform stage. Similarly, in a specific site, the phase of reform can be determined by auditing the evidence presented across the site. At the systemic level the components of the phases outlined in the ECM support further progress in implementation. Hence, the adoption of the ECM is applicable to the innovative change in the whole-of-program reform charted in this case study.

The ECM proposes that programs of reform are typically established in three phases, gradually introducing particular core component changes, and typically spanning 6-7 years, depending upon contextual factors. These phases are: the Initiation phase, the Development phase and the Consolidation phase. Both the ECM and the relevant literature recognise that educational reform often takes longer than expected or typically allowed for in reform schedules. The three broad phases can be mapped onto any major reform initiative, and feature indications of time taken to achieve each phase. The Initiation phase typically occupies the first year or two, the Development phase typically consumes the next two to five years, and the Consolidation phase can last over a further five to ten years. The time periods associated with each of the three phases are indicative only and can be accelerated through the
alignment of contextual enablers. Concomitantly, inhibitors can lead to dips in the progress of the reform program, thus adding extra time to the overall reform process. Table 1 provides a summary of the core components of the ECM for each phase.

Table 1. Core Components of Educational Change Model

<table>
<thead>
<tr>
<th>Initiation Phase</th>
<th>Development Phase</th>
<th>Consolidation Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 years</td>
<td>2-5 years</td>
<td>5-10 years</td>
</tr>
<tr>
<td>• Introducing new language and philosophy</td>
<td>• Implement and refine Quality Teaching model</td>
<td>• Refine Quality Teaching practice</td>
</tr>
<tr>
<td>• Focus on transition</td>
<td>• Encourage emerging leadership</td>
<td>• Lead and support others</td>
</tr>
<tr>
<td>• Establish Quality Teaching model – structures, protocols &amp; practices</td>
<td>• Plan and implement, revise and renew</td>
<td>• Build capacity, ownership and sustainable practices</td>
</tr>
<tr>
<td>• Establish leadership model</td>
<td>• Facilitate learning communities for teachers</td>
<td></td>
</tr>
<tr>
<td>• Plan and establish evidence principles</td>
<td>• Use and extend evidence sources</td>
<td></td>
</tr>
<tr>
<td>• Develop knowledge base around initiative</td>
<td>• Develop support structures to enable sustainability of reform</td>
<td></td>
</tr>
</tbody>
</table>

Within the ECM, the role of the educator as an active agent of reform and development is crucial. University educators must be active and effective agents of the intended change. Providing opportunities for individuals to work together and have collective responsibility to improve practice is a positive, whereas a lack of agency has been recognised as a problem in program development. In order to achieve collaborative practices, educators need time to reach a common understanding and hence establish a shared commitment, thereby setting up the conditions for embedding a shift in the fabric of the teaching and learning [7]. The ECM has been adopted to underpin the overall approach to the implementation of reform in Initial Teacher Education (ITE) of interest in this paper. Hence, we are cognisant that the major change underway will typically traverse the phases of initiating, developing, and then consolidating the major reform. At the time of writing this paper we have journeyed through the initiation phase and in the next twelve months will move to the developing phase. Later in this paper we return to the ECM as a lens to revisit the Initiation Phase enablers and inhibitors.

2.1. Reform in Initial Teacher Education (ITE)

In Australia, it is of considerable concern that school student learning outcomes are falling behind other countries, as evidenced by indicators such as the PISA and Tallis scores. The focus of the cause of this decline has landed squarely on teacher quality and is fueled by a lack of information about the impact of the variability in the quality of practice – real or perceived – of initial teacher education programs around the nation. This focus is not new with a large number of reviews year after year giving voice to concerns by leading educators in the field about the importance of teacher effectiveness as one of the most important factors influencing school student learning outcomes [8; 9]. Of these reviews, the latest which resulted in the publication of the report *Action Now: Classroom Ready Teachers* (Teacher Education Ministerial Advisory Group [10] sets out 39 recommendations to improve teacher readiness for classroom work. This review has had considerable impact around the nation, with all but one of the recommendations being accepted and funding for the implementation of the other recommendations being provided. The TEMAG recommendations require significant change in ITE programs delivered by universities around Australia, including those related to: selection, which is required to include non-academic as well as academic capabilities; evidence of impact on student learning; and successful completion of benchmark literacy and numeracy tests; among other more specific requirements. Implementation of these reforms is actioned though increased demands for accreditation mandated by the Australian Institute for Teaching and School Leadership (AITSL) and implemented by state based authorities, in this case the Queensland College of Teachers (QCT). In this regard, the TEMAG agenda has provided a large ‘spark’ for program reform in ITE in Australia and all programs around Australia are required to meet new national standards.

3. Renewal

A case study of the Bachelor of Education is presented here to demonstrate the programmatic response to national and local imperatives framed as an opportunity for curriculum renewal. The case study highlights the inhibitors and enablers encountered during the renewal process, and presents the actions enacted to bring about the innovative renewal. Alongside this renewal process the university has been engaged in a broader renewal process which has been a further significant contextual factor enabling change.

3.1. Griffith Model of Education

In 2016, the key issues facing the University over the next decade formed the context for a further ‘spark’ for reform and provided opportunity for a wide-ranging dialogue with staff, including those delivering initial teacher education. In response, the
Achieving Griffith 2020 Project was conceived and articulated to the Griffith university community. This strategy, which includes the Griffith Model of Education, seeks to position the University to respond to the challenges ahead and to ensure future growth. The Griffith Model of Education proposes strategies for enhancing the University’s high performance culture and strongly positioning Griffith for the future. These proposals incorporate four key themes:

- Flexibility
- Quality
- Market-informed academic planning
- Engaged and relevant

The key opportunity at this ‘translation into practice’ phase is progressively establishing ‘ways of thinking and doing education’ that will form the foundation for a ‘new normal’. The corresponding risk, is engaging staff in a process of compliance, and thus while we are readily able to produce structural program changes (as evidenced by new degree structures and course profiles) the underlying educational processes (and the corresponding student experience) may remain largely untouched.

3.2. Program renewal

The Bachelor of Education is a 320 credit point degree, completed in 3.5 calendar years. This new program has been developed in response to the two sparks of the TEMAG agenda and the Griffith Model of Education agenda.

In addition to the AITSL requirements, ITE programs in Queensland, Australia have statutory pre-requisites required by the Queensland College of Teachers and implemented by legislation through accreditation of programs and hence eligibility of those graduating from the program for registration. Those entering Secondary teacher education programs must study Mathematics and English to Year 12 at a satisfactory standard, while those entering Primary programs must study Mathematics, English and Science. The design of the new Bachelor of Education program is that all students offered a place will have Mathematics and English as prerequisites. Students will be offered delayed choice in award major, in accordance with the Griffith Model of Education, and will decide at the end of Trimester 2 (T2) of First Year whether to enter the Primary or Secondary major. Students who select the Primary major who have not completed the Science pre-requisite will complete a bridging course during Trimester 3 (T3).

The Bachelor of Education enrols students in an 80 CP Foundation year (T1 and T2). Students select an award major in either Primary or Secondary education at the end of T2 of first year and study appropriate courses in second and third years, culminating in a largely common trimester in their final semester which includes a capstone course. Students participate in school-based practicums (work integrated learning experiences) in all years of the program, concluding in an internship. Work integrated learning is a key part of the Bachelor of Education as a professional degree, and adding practicum to all year levels of the program in both the Primary and Secondary Majors is one of the foremost motivations for the development of the new program. This is something that the Teacher Education Industry Advisory Groups (TEIAGs), representing each campus where education is offered, have strongly advocated, as well as other principals and professional leaders consulted.

4. Reflect

Employing the Educational Change Model as the lens to frame the renewal process, the 6 core components of the Initiation Phase can be utilised as a reflection tool.

4.1. Introducing new language and philosophy

A range of new terms have been introduced that represent the notable shifts in the program. Of these the most significant is the use of the term ‘foundation year’ to describe a shared series of 8 courses that all ITE students in the program study prior to selecting their pathway as a primary or secondary teacher. Developing shared understandings of this terminology has been crucial for all stakeholders, including: academics delivering the program; school leaders; university committee members beyond the school; prospective students influencers for program choice, such as school principals, parents and friends. Methods of developing shared understandings have included the development of digital and paper based resources.

4.2. Focus on transition

This core component relates to attending to the many transition risks, such as the literal shift of students into the program, especially the first cohort; the transition of academics, especially with respect to adopting a new philosophical lens. A series of retreats with the academic team have assisted to develop shared understandings, to undertake transactional work such as developing weekly schedules, course profiles, and assessment pieces. This is a major change to previous models where courses have operated as insular, separated entities.
4.3. Establish Quality Teaching model – structures, protocols and practices

Deepening quality-teaching practices affords the opportunity to explicitly articulate a set of strategies for success. The set of strategies are arrange around the following key areas: the teaching philosophy of the program, the student-centred approach to teaching, a deepening of the scholarship of learning and teaching in an ITE program, recognising innovations for development and employment, and identifying opportunities to demonstrate leadership.

4.4. Establish leadership model

Clearly defining the leadership model for this program delivery was an early process in renewal in order to ensure both leadership and collaboration featured during this Initiation phase. Leadership via designated leaders has been explicit and in the collaborative retreats various leaders have emerged related to student wellbeing, assessment, administration, professional experience, alongside content area specialist teams. This has enabled a warp and weft model of leadership to emerge.

4.5. Plan and establish evidence principles

Formal quality indicators are mandated as part of any university program activity, especially those related to feedback from students. This program includes such evidence sources and in addition has adopted a series of research agendas, including: teacher efficacy, sense of belonging. This is combined with the additional requirements of the AITSL standards which demand that ITE students demonstrate the effect of their teaching on student learning outcomes.

4.6. Develop knowledge base around initiative

This final core component has been addressed by communicating frequently and fulsomely with all relevant stakeholders in their various contexts.

5. Conclusion

Along with the six core components of the ECM Initiation phase, there have been predictable enablers and inhibitors. Enablers to reform include: clarity of vision and philosophy; existence of a risk taking culture; leadership at systemic, school and individual levels of operation; encouraging a collaborative culture with an emphasis on individuals as members of a learning community; provision of support for individual professional learning; and resource commitment, including time and finances. Inhibitors to reform leading to downward dips in progress include: lack of leadership; lack of funding; lack of vision and philosophy; poor evidence base; and lack of commitment.

This case study delineates the response to national and local imperatives framed as an opportunity for curriculum renewal. It highlights the obligation for agile leadership and responsive innovation in Australian Initial Teacher Education (ITE) through ensuring a three-stage process: reform, renew, and reflect.

6. References


Primary School Governance in Bangladesh: A Practical Overview of National Education Policy- 2010

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Abstract

The National Education Policy- 2010 (NEP-2010), approved by the National Parliament in December, 2010, provides a framework for primary school administration. Policy gives immense power of internal supervision and monitoring to the Head Teachers (HT) of the schools, while providing little room for community people and parents in school governance by suggesting establishment of parents-teachers committee. The policy, in the process of decentralization of primary education system, empowers school management committee (SMC) to monitor school management and ensure community participation in the development activities of school. For external supervision, as a part of decentralization, every education officer is assigned certain number of schools. Annual evaluation report of teachers and HT is to be made by HT and SMC respectively. However, in reality, we find that HT, in many cases, is in ‘all in all’ role in school management; balance of power between HT and SMC, transparency and accountability in regard of school management is rarely found; almost no community and parents’ participation in school management and development activities is found; external supervision seems insufficient and ineffective to a large extent; and annual evaluation report is often manipulated by HT. In fact, policy does not draw any clear cut sketch which can ensure a good coordination among stakeholders and can work as a remedy to above mentioned realities. This paper suggests that education policy should have provisions which will create a balance of power between HT and SMC, and enhance check and balance and coordination among all the stakeholders in terms of school management. External supervision plays a significant role in school management. So, there should be more external supervision. This paper also aims at reflecting on effectuality of NEP-2010 by going through primary data.

1. Introduction

A policy is a principle or rule to guide decisions and achieve rational outcomes which is intent, and is implemented as a procedure. The National Education Policy- 2010 [1], approved by the National Parliament in December, 2010, provides a framework for fulfilling the role of the educational system in the nation’s human resource development. Salient features of the policy are, a. Teaching learning process- universal education up to grade 8, multiple delivery modes with common core curriculum and standards, literacy and non-formal education, quality improvement in tertiary education, student assessment to discourage rote learning, and vocational and technical education b. Administration and governance- governance and management measures. This paper will mainly shed light on administration and governance issues relating to the primary education.

Whatsoever, we find provisions of NEP-2010 relating to school governance and management is failing to fulfill the expectation in reality; decentralization process of primary education- new role of the School Management Committee (SMC), Parents Teachers Association (PTA) and system of annual evaluation report- is seeing lots of hindrances due to the absence of concrete framework for the role of SMC and PTA. This paper aims at finding out components missing out from the policy to draw a framework for the activities of SMC and PTA.

Expectation is researchers, policy makers, education officers and academics will get benefits from the findings of this paper. This paper will provide some food for thought and open up a new room for analysis of the effectuality of the existing policy and policy options. Policy makers and other stakeholders can use the findings to make a more functional SMC and PTA, thus improving primary education system.

2. Methodology

In this research, to identify the effectiveness of School Management Committee (SMC) and Parents Teachers Association (PTA) in regard of participation in the school development work and supervision of regular school activities, we used qualitative, quantitative data and content analysis by random sampling. Total respondents were 50 in number from 20 schools in Dhaka and its surrounding areas; 20 School Management Committee (SMC) members, 20 parents and 10 Head
Teachers (HTs). Quantitative data were collected by closed ended questions and reviewing school documents, whereas qualitative data were collected by open ended questions. Simultaneously we went through some secondary data to have content analysis.

3. Problem Description with Findings

3.1. State of Relationship between HT and SMC

The NEP- 2010 empowers the SMC members to take part in development and other activities of the school as well as supervise and monitor HT and other teachers’ work. The annual evaluation report of the HT is also supposed to be made by the SMC people as told by the policy. However, policy does not provide any legal framework- rules, regulations and jurisdiction- for SMC. As a result, most of the SMC members do not play any active role in monitoring and supervision of school activities. No social recognition or perceived benefit of SMC members, being unaware of the role and responsibility, lack of training might be responsible for not playing any proactive role. The SMC members of most the schools rarely pay any visit to the schools and hold meeting [2] [5].

Graph 1. Percentage of SMC meeting in the last 6 months

Primary data reveals that most of the SMC members do not feel comfortable to visit school as HTs do not pay any heed to their suggestion as well as in most of the schools SMC members even chairman does not have any chair to sit in. Furthermore, even when SMC members find teachers irresponsible in regard of their duty, they cannot take any step against them. Huge room of authority for HTs and absence of legal framework of SMC’s role with just mere recognition by the policy is hindering the process of coordination between HT and SMC. Furthermore, primary data shows that, in reply to an open ended question regarding the area of responsibility of the SMC, almost 60% of the SMC members did not mention their role of supervision.

Lack of SMC meeting is another problem in the row which is making hindrances on the way of its active role play. Most of the HTs think that such meetings are of no use, while most of the SMC members reveal that HTs do not take step to hold SMC meeting.

3.2. Transparency and Accountability

Corruption and mis-governance are to be significant to affect the quality of education at school, which are described at three levels, at the community level by SMC, school level by the teachers, and at the level of Assistant Upazila Education Officer (AUEO) and Upazila Education Officer (UEO). Many of the issues relating to corruption and mis-governance are interrelated and cannot be accomplished without the connivance of one another. The nature of corruption and mis-governance cover the areas; irregular attendance of teachers, late arrival and early departure of teachers, dependence on Para teacher, selection and distribution of stipend money, monitoring and supervision, recording and reporting, misappropriation of development fund, private tuition [2] [5]. In addition to this, HTs do not mention the irregularities of assistant teachers in the reports. Let alone the irregularities of the HTs.

Here comes the scenario of the absence of check and balance. There is no one at the school level to hold HTs accountable. Moreover, absence of effective mechanism of the triad of PTA, SMC and education officers discourages first two stakeholders of the triad to supervise; they do not have any direct meeting with education officers of higher level. If any irregularity is found how they will deal with it or go ahead with the issue to solve? There is no such provision is inserted which is making them think that my visit or supervision is of no use.

Graph 2. Percentage of the SMC members supervised in the last 6 months.

3.3. Role of PTA

The NEP- 2010 proposes Parents Teacher Association (PTA), a body to take part in the development activities of the school and sit in the regular meetings to get the updates of the school and
students. However, policy does not suggest any regulatory or supervisory body to attend the meeting to see that the meetings are in place and there are some proceedings. So, there is no one to testify if meetings are really happening or not. The study “Participatory Evaluation: Causes of Primary School Dropout” conducted by RTM International on behalf of Directorate of Primary Education shows that most of the parents do not know anything about PTA and have not heard about PTA and its meetings. They do not have any knowledge about its activities. Lack of community participation and ownership of schools keep them away from every type of involvement.

Teachers do not give much importance on the parents even though this is one of the most important stakeholders of the school improvement and quality education.

Graph 3. Percentage of PTA meeting held in the last six months

3.4. External Supervision

The policy suggests annual evaluation reports of assistant teachers and HTs to be made be made by Ht and SMC respectively, whereas, primary data shows, most of the SMC members do not know about this and HTs themselves make and submit the both evaluation report. Furthermore, another problem associated with supervision is, policy does not create any room for the SMC and PTA to have meeting with the external supervision team, which creates huge gap between the stakeholders directly related to the school management, which arises the question- to whom SMC or PTA would report?

Policy allocates each education officer, as a part of the decentralization process, a certain number of schools to supervise. And the study conducted by RTM International shows that one of the key reasons for poor performance of primary education system is lack of monitoring and supervision.

Moreover, we found that, 90% of the SMC and PTA members told, in the meetings, during education officers’ supervision where several reports are made, no member from SMC or PTA attends, which opens up a big room for drafting fake reports. Education officers make reports in line with the information and clues HT provides. As a result entire process of supervision seems to be ineffective, meaningless and useless.

4. Policy Recommendation: A Theoretical Perspective

For policy suggestion, we have directly shed light on Fullan’s “Six Secrets of Change”, a model of school management and leadership in order to ensure primary school governance more functional.

For the excellent primary school governance, the leadership quality of the SMC and the head teacher from primary school needs to be ensured. For having the leader’s quality improvement and for the better primary school governance, the whole school improvement model of Fullan [3] can be applicable ensuring the leadership improvement with six staircases working as a cycle. As leadership is a process rather than an individual effort, participation from the end of SMC and head teacher meet the staircase from one to another, initiate the improvement in relationship and keep changing the atmosphere towards fulfilling the endeavor of governance. They can call for meeting regularly, they can share their interest, vision, plan or responsibility they want to carry on.

First insight is about affiliation between SMC and HT in both ways can set the ground building up connection and mutual trust among them and cycle goes on with shared purpose and objective for both the SMC and head teacher for the improvement of school governance. Thus connection can provide governance the capacity to enforce them executing their vision and plan and in the same way they learn from each other, they learn from their ongoing task and activities, apply and maintain those accordingly. For capacity building most important step is
maintaining the transparency, sharing their activities and being honest and direct about every issue. It will strengthen the bond between the HT and members of SMC.

While working together with shared vision, plan, responsibility every system learns, finds out their mistakes and finds out something better than the previous plan. It enhances the system to build up again and cycle will never end.

5. Policy Suggestions

5.1. Balance of Authority between HT and SMC

Once famous political scientist Lord Acton stated that, “Power corrupts and absolute power corrupts absolutely” [4]. We believe there should be a framework that draws the jurisdiction- role and responsibility of the SMC in order to minimize the immense authority of the HTs and create balance of authority between SMC and HT, which will hold SMC body accountable for their activities, by submitting reports and attending regular meetings, to the education officer simultaneously with the HT. Training needs to be provided for the SMC members for performing their responsibilities effectively. The responsibility of arranging the SMC meeting needs to rest on HT, SMC and education Officer. Meeting needs to be observed by the education officer directly. In terms of decision making, both HT and SMC will get similar priority. If schisms come up, education officer will interfere and make a solution. There would be a focus not only on what decisions are made and by whom, but how they are made.

Moreover, most importantly, annual report of the performance of the HTs, unlike present practice, needs to be made by the SMC people and the annual report of the whole school should be drafted in the SMC meeting in presence of both SMC and HT, so that no manipulation happens.

5.2. Enhanced Check and Balance

Triad of SMC, HT and education officers is need to be in a solid structure to enhance check and balance in school governance. If SMC people find any teacher or HT irresponsible, unlike the present circumstances, they need to be given the rights and legal procedure to take actions by be it placing in the SMC meeting before education officer or sending a report to the higher authority. And education officers must take this report into account by making primary inquiry.

Moreover, we think SMC is the very primary stakeholder for supervision and can produce the real scenario of the school and they needs to be given more priority during education officers’ visit to the school and report drafting. If SMC and HT are present in the report making process before higher authority, there is very lesser possibility of manipulation. Neither SMC nor HT can make any false statement.

There needs to have a legal status and recognition for SMC people by the law and constitution. A place for sitting and a chart of activities are to be managed in the school for the SMC body.

5.3. Effective Use of PTA

PTA meetings are to be in place on a regular basis to involve the parents in the governance process as well. SMC members as well as education officers need to attend this meeting. Parents need to know the progress report of their kids so that they understand their duty. Moreover, annual budget and expenditure report of the school need to be presented in the meeting so that parents feel more belonged to the school. Parents are to be given the right to raise any irregularity issue, if they find, in the meeting.

Every teacher should remain open and warm to reply to the questions to be made by the parents. Such open and direct feedback and engagement of the parents in the school governance process will ensure more transparency and accountability.

5.4. Effective External supervision

External supervision team needs to have meeting with SMC and PTA people, so that no gap between stakeholders comes into place. There needs to be regular and frequent visit of higher education office with no prior notice of arrival. This external team is the key instrument for making coordination between PTA, HT and SMC in order to ensure a much fairer and effective governance process. This external team should have primary report of their observation which they will try to use to examine the reports to be given by SMC, PTA and HT.

This kind of external supervision and engagement with other bodies of the school will make entire school governance more transparent and make SMC and PTA body feel more valued [6].

6. Conclusions

There is linkage between school governance and educational outcome in primary education of Bangladesh. Three indicators of school governance (SGI) such as SMC, head teacher, and single shift school are instrumental to the effectiveness of the school governance [7]. At the end, we would like to reiterate that there needs to be a structural framework which will give room for the SMC and PTA to function. Education officers should work with HT as well as other two stakeholders to ensure a better governance system.
7. References


Session 7: Learning / Teaching Methodologies and Assessment

Title: How I Deliver- Exploring the Preferred Instructional Styles of English Subject Teachers
(Author: Mubashira Khalid)

Title: School Subject Emergence in a Developing Country: Trinidad and Tobago
(Author: Leela Ramsook)

Title: A Study of Teachers’ Approaches to Teaching at Undergraduate Level
(Author: Tanveer Iqbal)
How I Deliver- Exploring the Preferred Instructional Styles of English Subject Teachers

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Abstract

This cross-sectional study was an endeavor to explore the teaching preferences of Secondary School English Subject Teachers and to find any difference in teaching styles of male-female, urban-rural Secondary School English teachers. The sample of the current study was consisting of tenth grade English subject teachers randomly selected from forty two Government Secondary Schools of the province of Punjab. Grasha-Riechmann Teaching Style Inventory (GRTSI) was used to explore the teaching styles on five distinct categories of the Teaching Style Inventory namely expert, Formal Authority, Personal Model, Facilitator and Delegator. The data was analyzed using descriptive statistics techniques. The research findings demonstrated that the teaching styles of the sample teachers were found as Expert, Personal Model, Facilitator and Delegator. The further analysis showed that overall there was no significant difference between male-female, urban-rural English subject teachers teaching styles. The study concluded that a teacher should know his preferred teaching style(s) and should modify according to the learning requirements of the students.

1. Introduction

The terms “teaching style” or “instructional style” indicate the teaching methods and approaches which an instructor employed while delivering instruction or interacting with students in the classroom, and it not only incorporate instructional objective, didactic fundamentals, but also includes cognitive, affective and personality aspects which effect the teaching learning process [5]. The word “style” represents an element of change and fashion in the teaching pedagogy [7].

Style also stands for the one’s preferred ways of understanding of various things and phenomenon [15]. Reinsmith [13], portray “teaching style” as the instructors’ present nature and qualities to interact with his students in the classroom. Teaching style also refers as a tag coupled with a set of teachers particular and identifiable behaviors while teaching in the classroom and these behaviors remains the same even supposing the instructional contents may be changed [6]. Macfadyen and Bailey [10] describe teaching style as “how an activity is delivered, rather than what is delivered”. Siedentop [14] view that it is a typical teaching and managerial environments which are surfaced during the classroom sessions and that can easily is seen during the instructors’ interactions with his students. Artvinli [2] describe teaching styles as the prime ingredients which form and ensure the accomplishment of a extremely multifaceted process of teaching and learning. Grasha [8], describe instructional style as an instructors’ specific arrangement of beliefs, needs and behaviors which the instructor exhibit while interacting the students in the classroom. Grasha further explain that a teaching style is a multidimensional instructional approach which elaborate that how teachers interact with their students, their way of presenting information to the students, their class room task management skills, how they supervise classroom activities and students course works, how they make the students to be socialized in the practical life, and how the mentor their students. For the rationale of the present study, teaching style refers to the styles as mentioned by the Teaching style model presented by the Grasha [8] and included the “Expert Style, Formal Authority Style, Personal Model Style, Facilitator Style, and Delegator Style”.

2. Review of Literature

According to the Kamuche [16], “in the last five decades, the topic of learning and teaching styles has been of considerable interest in the administrative and organizational sciences, as well as academic community. Since its inception, several hundred articles, chapters, and books have been written on the subject of learning and teaching styles. Each researcher begins his or her work by indicating the conceptual dilemma and methodological problem surrounding this construct and almost all indicate that little agreement exists about what learning and teaching styles means or how to adequately measure it. Authors writing on the subject are so disillusioned that they often cause more confusion than enlightenment. Despite this shortcoming, the study of learning and teaching styles remains an important issue” [16] [17].

The expressions “teaching styles” and “instructional styles” are very common in the
educators and both these terms are used interchangeably with each other. Both these expressions denote the teaching methodologies which the instructors employed during their course of instruction in the class, and not only consist of the factors such as “objective and didactic factors”, but also include “subjective and personality factors” which can affect the instruction process of an instructor. [5].

[17] established that instructors who are suitably skilled, self-motivated and self-driven, who incorporate proper planning techniques in their lesson-plans and instructions – that motivate their students for the academic achievements, and the instructors whose teaching is based on the learning needs of their students so that students can make a difference among others, have a propensity to be more successful and much effective than other teachers who are short of these qualities and characteristics. Some educators argued that students belonging to such instructors are expected to utilize their full potential in learning their course work and further utilization of their knowledge. On the other side, some educators argued that instructor’s passion do not have impact on student’s academic performance [4]. In America, several states, in have a strong faith that a competent and enthusiastic instructor definitely have a strong effect on the performance of the students, and based upon their beliefs, many states make it mandatory for the instructors to get a certification of teaching before joining any education institution [9]. A recent report pointed out that a number of instructors are found deficient in basic skill in spite of the fact that they have all the certification requirements [9]. How this “teacher certification” effect students academic achievements?, study regarding the comparative analysis of both primary schools teachers with and without state certification depicted the results that students of those teachers who have state certification showed 20% more growth in their academic achievements than the students of non-certified school teachers [9].

Witcher, et al. [11] carried out a study having sample of 219 pre service teachers, regarding the perception of the teachers concerning the identification of characteristic and qualities of studied about the characteristics of successful instructors and identification of the factors which may affect their natural responses. They recognized six leading schemes, beginning from student-center and passion for teaching. Despite of the findings of the study, without any doubts, it is evident that the teachers have a central position and his role is very much important to manage and ensure that all his students are successful learners. The point which may be unresolved is that in which way the instructors devise their instructions to come up to the expectations of their students? The teachers, first of all have faith about the preposition that all their students can ready to learn. For the reason that instructors’ attitudes, personal traits and expectations pervade teaching pedagogy, he/she must believe in that all of the students have the capacity to become a successful learner. This realization in the instructors is the beginning footstep in developing an “effective literacy program” and creating a society where there is respect for each and every child [17]. Students’ potential for future success could be augmented by creating a proper communication channels with them and stimulating hopes and future expectation in them. An instructor should always be conversant with effective teaching techniques and pedagogical practices which will be helpful to cater the varied needs of their pupils, which definitely requires that the instructor should have prior experience, knowledge, comprehension, and mother languages which every child bring with him when come to the school. Instructors are responsible to generate “learning environments” which will develop amongst the students, a “cognitive, language, and social” improvements by means of teaching- learning activities which will be helpful in their future life [17].

From through view of review of literature, it is established that researchers, authors and theorist employed various distinct terminologies, depending upon their researches and studies, to define and express the phrase “teaching styles” [1].

3. Objectives of the Study

The present study was carried out to attain the following objectives:-
1. To investigate the teaching styles of Secondary School English teachers
2. To identify any difference in teaching styles of male-female Secondary School English teachers.
3. To identify any difference in teaching styles of urban-rural Secondary School English teachers.
4. To establish whether teacher’s teaching styles match with student’s learning styles.
5. To identify any difference in teaching styles of general, Pilot, DPS and Comprehensive Secondary School English teachers.

4. Research Questions

The study was specifically addressed the following research questions:-
1. What are the teaching styles of Secondary School English teachers?
2. Is there any difference in teaching styles of Male and Female Secondary School English teachers?
3. Is there any difference in teaching styles of Rural and Urban Secondary School English teachers?
4. Is there any difference exists in teaching styles of Secondary School English teachers of different types
of schools (general, pilot secondary, central model comprehensive schools)?

5. Methodology

The instrument adopted and employed in this study was survey research design. The main reason of using survey design was that through this method one can, without any difficulty, observed the elements of the sample and the identified variables of the study without any difficulty to control or manipulation. In this study, the researcher anticipated to analyze a sample of approximately participant of 42 schools English language teachers of province of Punjab to identify the teaching styles of the selected sample. The theoretical population of this study contained all the government sector Secondary school English teachers of the Province of Punjab teaching at secondary level. The multi-stage cluster sampling technique was used to select the sample from the population of teachers in the province of Punjab. There are nine administrative Divisions in Punjab. Four schools ( Two male schools each one from urban and rural, and two female school each one from urban and rural) excluding Central Model Schools, Pilot Secondary Schools and Comprehensive Schools were randomly selected from each division using simple balloting method. Two central Model Schools (one male & one female), two Pilot Secondary Schools (one male & one female) and two Comprehensive Schools (one male & one female) were randomly selected from the total schools of each category in Punjab province. In this way 42 schools were selected from the province of Punjab. All the teachers teaching English secondary level of the selected schools were participated in this study.

To measure the teaching styles of the English class teachers, Grasha-Riechmann Teaching Style Inventory (GRTSI) was used in this study. Grasha [8] developed this inventory which include 40 items with a 5-point Likert-type scale varying from strongly agree to strongly disagree. This teaching style inventory measure the teaching styles on five subcategories of teaching styles such as “expert, formal authority, personal model, facilitator and delegator”.

Teaching Style Scale was initially developed by Grasha [8] and later on Turkish researchers adapted it into Turkish language. Grasha (2002) found the reliability coefficient value (Cronbach-alpha) of this scale on 0.78. Razak, et al., [12] indicate that the reliability coefficient (Cronbach alpha) of this scale at 0.82. In another study by Bilgin and Bahar [3] reported the reliability coefficient (Cronbach alpha) of this inventory at 0.89.

6. Data Presentation, Analysis and Findings

Grasha-Riechmann teaching style inventory was administered to all the sample teachers during class room setting. The data collected through teaching style inventory was analyzed using SPSS computer software. The results are shown hereunder:-

6.1. Findings Research Question 1- The teaching styles of Secondary School English teachers?

To find the response of the first research question, researcher first measured the mean scores of the sample on each and every styles of learning and then the resultant mean scores was compared with the diverse mean score ranges of the Grasha scale as proposed by Grasha, [8] and exhibited in the below Table 4.1. Teachers mean score value was 3.98 on “Expert Teaching Style” this implied the fact that teacher’s score was labeled as “Moderate”. Teachers also got score in “Moderate” category in “Personal Model, Facilitator and Delegator” Teaching Style. Only in “Formal authority” style, their score was 3.79 which fall under the rank of “Low”. According to the data the sample teachers of the schools were found as Expert, Personal Model, Facilitator and Delegator.

6.2. Findings Research Question 2 - Difference in teaching styles of Male and Female Secondary School English teachers?

In order to answer research question, the researcher compared the teaching styles of Male/Female English school teachers on five sub categories of the Grasha-Riechmann Teaching Style Inventory. For this purpose, first mean score and standard deviation of male and female teachers were computed and afterward, to compare the mean scores of male/female teachers, a one way ANOVA was carried out from sample schools on the basis of different categories of Grasha teaching style inventory. The results are shown hereunder respectively.

It is evident from the One way ANOVA results as shown that there was no significant difference found between male and female English teachers on Expert teaching style (p >.05). On Formal Authority teaching style there was a significant difference between male and female English teachers as (p <.05). There was no significant difference found on Personal Model teaching style between male and female English teachers as (p >.05). A significant difference found in Facilitator teaching style between male and female English teachers as (p <.05). No
significant difference found in Delegator teaching style between male and female English teachers as (p > .05).

6.3. Findings Research Question 3 - differences in teaching styles of Rural and Urban Secondary School English Teachers

In order to answer this research question, the researcher compared the mean and standard deviation of Urban - Rural English school teachers on five sub categories of the Grasha- Riechmann Teaching Style Inventory. For this purpose, first mean score and SD of urban and rural teachers were computed and afterward, to have a comparison of mean scores of urban and rural teachers, one way ANOVA was conducted from sample schools on five sub categories of teaching style inventory. The results are shown hereunder.

One way ANOVA results demonstrate that no significant difference found in Expert teaching style between urban and rural English teachers as (p > .05). No significant difference found in Formal Authority teaching style between urban and rural English teachers as (p > .05). A significant difference found in Personal Model teaching style between urban and rural English teachers as (p > .05). One No significant difference found in Facilitator teaching style between urban and rural English teachers as (p > .05). A significant difference found in Delegator teaching style between urban and rural English teachers as (p < .05).

6.4. Findings Research Question 4 - Differences in teaching styles of different categories of Secondary School teachers

The researcher compared the General, Comprehensive, Pilot and DPS school English teachers on five sub categories of the Grasha- Riechmann Teaching Style Inventory in order to answer this research question. For this purpose, first mean score and SD of the teachers of different categories of schools were computed and afterward, the researcher conducted the one way ANOVA so that to have comparison amongst the mean scores of the teachers on five sub categories of teaching style inventory. The results are shown hereunder respectively.

One way ANOVA results demonstrate that no significant difference found in Expert teaching style amongst the General – Comprehensive – Pilot - DPS English teachers as (p > .05). No significant difference found in Facilitator teaching style amongst the General- Comprehensive – Pilot - DPS English teachers as (p > .05). No significant difference found in Delegator teaching style amongst the General/Comprehensive/Pilot/DPS English teachers as (p > .05).

7. Summary

The present study was a descriptive study based on a survey research. The study aimed to identify teaching styles of 10th grade English class teachers so that teachers can adjust their teaching styles with students’ learning styles to maximize the teaching learning outcomes. The study was conducted in the government schools of the province of Punjab. To identify the teaching styles of the teachers, the Grasha- Riechmann Teaching Style inventory was employed in this study. The data for this study was collected by administering Grasha- Riechmann Teaching Style inventory to English subject teachers. Collected data was analyzed by statistical techniques through SPSS computer software. The study results revealed that the teaching styles of majority of the 10th grade English subject teachers were found as “Expert, Personal Model, Facilitator and Delegator” teaching styles.

8. Discussion

The results of the present study exhibited that Expert, Personal Model, Facilitator and Delegator styles of teaching are dominant in the sample English Subject teachers of this study. The further analysis of data showed that there is no difference in teaching styles between the gender, rural-urban, and various categories of government schools. This clearly showed that the 10th grade English subject teachers shared the same dominant teaching styles with each others.

The results produced through this study are valuable because it will apprise the teachers to know their preferred teaching styles and adjust or modify their styles according to the need and different learning environments so that maximum outcomes and benefits could be attained both for teachers and students through teaching learning process. Since the majority of the secondary schools English subject teachers’ teaching styles were found to be Expert, Personal Model, Facilitators and Delegator, the teaching strategies should be designed and tailored based on their preferred teaching styles and students learning styles.

The teachers possessing the characteristics of the Expert teaching styles have the proper knowledge, capability and expertise which their English subject students require most for their future knowledge and
progress. They can widen the mental approach and enhance the competencies among their students by effectively using their preferred teaching style. He students can take the learning process as a challenging task and exert their maximum energies considering their teacher as an expert of the English pedagogy. This style of teacher can easily transmit the necessary information and prepare their students for future academic advancement.

Since a teacher with Personal Model teaching style have strong faith by setting and behaving as a personal example among the class room students, he can become a role model for his students in behaving and mental thinking. Such teachers can transmit information through class room demonstrations, building prototypes, guiding and directing their students by simulating and their personal experiences. Through these teaching styles, students can get more encouragement, get information and retain the knowledge by imitating the teachers’ approach.

9. References

School Subject Emergence in a Developing Country: Trinidad and Tobago

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Abstract

Trinidad and Tobago, a twin island Republic in the Caribbean which was a British colony until 1962, inherited a system of education with prescribed school subjects such as English Language, English Literature, History, Mathematics and Science. This study investigated the emergence of a new school subject, Social Studies, on the national curriculum in Trinidad and Tobago during that nation’s immediate post-independence era. The main objectives of the study were to investigate the nature of the decision-making that catapulted the emergence of the new school subject and the experiences of participants who were involved in its development. A hermeneutic phenomenological method in the qualitative paradigm was used to discover participants’ experiences of the phenomenon - school subject emergence. The sample included eight persons who participated in the evolvement of the subject. Data collection instruments included face to face in-depth interviews, semi-structured interviews, memos, questionnaires, field notes and document analysis. Data were analysed using qualitative techniques of coding, forming categories/sub-categories and discerning themes that emanated. The results revealed that an individual was the determinant of the emergence of a new school subject, Social Studies, at both the primary and secondary levels in Trinidad and Tobago. The following themes emerged: 1. Educational Expansion 2. Establishing Relationships 3. The Individual as Determinant for Subject Emergence. The research has implications for the emergence of new school subjects at different levels of the education system locally, regionally and internationally.
A Study of Teachers’ Approaches to Teaching at Undergraduate Level

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Abstract

Teachers’ approaches to teaching are essential in leading student learning and form an essential basis for the approaches to study made by students [1] [2]. Studies on teacher-centered and student-centered approaches reveals that two approaches to teaching are used the teachers, who concentrate on lecture and the content, in other words having a teacher-centered approach, realize teaching primarily as the transmission of knowledge. Thus, they emphasize on structuring, organizing, and delivering the course content to make it easy to understand for students. On the contrary, teachers viewing teaching as a construction of knowledge of students, processes facilitating students’ scholarship or supporting conceptual change in students, are categorized as student-centered in their approach to teaching. These teachers concentrate on what students are doing. They not only encourage the students to gain knowledge but also activate them [3] [4] [5] [6] [7].

Guidance on effective teaching practices can be found through the availability of extensive amounts of empirical study on learning and teaching at higher education institutions. Rather than focusing on acquisition of life-wide/life-long learning skills, curricula often highlight content coverage.

1. Introduction

This study is intended to investigate teachers’ approaches to teaching in higher education and investigate whether or not they use concept building approach to prepare students for future professional life.

In similar teaching situations, different teachers assume different methods for teaching. Some researchers have credited this to constitutional characteristics of the teachers themselves such as different lecturing techniques, thinking methods, or personality traits. Yet, it has been debated by others that varied methods of teaching reflect different core ideas of teaching itself. Certainly, investigations based on interviews have revealed a multitude of different teaching notions. Kember [8] studied these investigations and proposed that the majority of them congregated on five different conceptions.

Table 1. Five different conceptions of teacher to teaching by [8]

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transmitting information</td>
</tr>
<tr>
<td>2</td>
<td>Imparting transmitting structured knowledge</td>
</tr>
<tr>
<td>3</td>
<td>Interaction between the teacher and the student</td>
</tr>
<tr>
<td>4</td>
<td>Assisting understanding on part of the student</td>
</tr>
<tr>
<td>5</td>
<td>Bringing about intellectual development and conceptual change in the student</td>
</tr>
</tbody>
</table>

It is assumed by many researchers that with experience, the ideas of teachers in higher education begin to change. This change is usually from being more content orientated and teacher-centered to being learning-orientated and student-centered. These changes will certainly have good effects for the teachers’ efforts in the classroom.

2. Research Methodology

This is a descriptive study which investigates the approaches to teaching of university teachers. A survey design is used and reasons to prefer this design over others was that the study was to explore the approaches to teachers which was determined from their beliefs and surveys could possibly be used to investigate these attitudes and beliefs. In this study we are focused on the nature of the respondents’ perceptions, values and feelings and the same design was used by Wang et.al. [9] and Trigwell & Prosser [10] in similar research. The sample of the study constitutes the teachers at various higher education institutes, and departments of natural sciences and social sciences. The data was collected from social and pure sciences departments in private or public universities which were recognized by the Higher Education Commission as degree awarding institutions. According to Higher Education Commission there are 43 universities in Punjab Province; 22 public and 21 private.

3. Instruments

The core objective of this study is to pinpoint the approaches to teaching by teachers at university level. The teachers themselves are an essential source of information with regards to practices and approaches of teaching in the classroom. For this
purpose the following instrument was constructed. The questionnaire was developed by using the key constructs used by Trigwell [11] in Approaches to teaching Inventory. The researcher personally visited each class of every department of the University selected for this study. Confidentiality was assured and appropriate guidance was provided to the teachers so that they can easily complete the inventory. The data was entered in the computer using SPSS tool for scoring and onward identification of teachers’ approaches to teaching.

4. Data Analysis and Interpretation

Data were analysed by applying Independent sample t-test, and One way ANOVA. Results are presented in tables. The data was collected by using “Teachers Approaches Inventory” ATI. Descriptive statistics, including frequencies, means and standard deviations, were calculated to summarize the responses to the scales wise items of ATI.

The university teachers on two approaches to teaching were compared on two approaches. The frequency of teachers using Conceptual Change/ Student Focused (CCSF) and Information Transmission /Teacher Centered Approach (ITTF) was determined.

5. References


Session 8: ICT Education

Title: Learning Catalyst: A Play-based Strategy for Teaching Applied Computing Concepts
(Author: El Sayed Mahmoud)

Title: Integration of Maker Movement into Education
(Authors: Fatih Cinar, Salih Ozsoy)

Title: Digital Privacy in the Classroom: An Analysis of the Intent and Realization of Ontario Policy in Context
(Authors: Heather Leatham, Lorayne Robertson)
Learning Catalyst: A Play-based Strategy for Teaching Applied Computing Concepts

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Abstract

The research work in this paper investigates a new teaching strategy that uses active learning through play to increase students’ uptake of learning computing concepts. The strategy promotes student engagement through playing a customized Jenga game. The game consists of a set of blocks, one side of each block is covered with a piece of dry-erase tape to allow erasing and writing on the blocks. This allows instructors to reuse this editable Jenga for developing their own game-based learning activities. Three sample activities have been developed and conducted to test the strategy experimentally. The test results showed that the strategy improves the class average and promotes the student engagement. A survey has been conducted to get students’ feedback on the strategy. The survey results demonstrated that students like the play-based strategy. The contribution of this paper is the development of a teaching strategy that improves students’ engagement which in turn helps students to learn important computing concepts.

1. Introduction

Games can improve students’ uptake of learning in ways that regular lectures cannot [1, 2, and 3]. Play is voluntary and enjoyable [3] which in turn facilitates and promotes student engagement [4]. Game-based learning enables students to practice on working in process-based environments because games are process-oriented and rule-governed. However, the positive effects of using games on learning cannot be generalized to all areas or games [5]. Over the last few years, research showed that using games in classrooms improves student engagement for specific subjects such as Math and English [6, 7, and 8].

The most important game’s feature is that play promotes student’s creativity. Each student should construct his own method that enables him to win. This method could be refined and mapped to a particular learning outcome space by group discussion. These gaming features inspired me to propose a play-based teaching strategy for teaching computing concepts at the School of Applied Computing, Sheridan.

Jenga is a simple game that promotes the development of physical and mental skills. The game requires players to take turns removing one block at a time from a tower constructed of fifty four blocks. Each block that is removed is then balanced on top of the tower. The game was selected for this project because it teaches students a lot about solving multi-objective problems that can be mapped to various design problems in applied computing through analogy. The game was created by Leslie Scott, and currently is marketed by Hasbro.

This work aims to investigate a play-based teaching strategy that promotes learning through play at the School of Applied Computing. The strategy is to use editable Jenga blocks and other necessary tools that enable constructing customized versions of Jenga game for learning computing concepts and acquiring relevant skills. The deliverables of the project include this paper and a Jenga toolbox that contains editable Jenga game sets, dry-erase markers and examples of slightly modified versions of Jenga games for promoting learning through play. The toolbox enables professors to design various activities that help students to learn different concepts through play.

The remaining sections of the paper present the strategy and its tactics then discuss the results of testing the strategy.

2. The Strategy

The strategy is to involve students in a customized Jenga game competition that constructs an active learning environment. This environment promotes student engagement and enables collaborative learning. Instructor prepares several Jenga game sets for the competition. He writes various sentences on a particular topic to the Jenga block sets. This allows students to read the sentences one by one randomly. The sentences written on each game set should cover a specific concept relevant to the topic. The sentences will be written to sticky labels too. A blank concept map should be prepared. Students use the labels to fill out the concept map.
2.1. The Strategy Guidelines

The class is split into groups so that each group uses a different Jenga game set that focuses on a particular concept. Each group removes one block a time from their tower, searches for a label that contains the sentence seen on the block, and sticks the label on the appropriate position on the blank concept map then stacks the block at the top of the tower to create a new layer. Each group uses the sentences to construct a concept map/model on the concepts targeted by their game set. Each group changes their game set every seven minutes by exchanging their place with the closest group located on their left. This rotation enables each group to explore each game set and learn from the concept maps created by the other groups. Students are not allowed to stack the removed block before adding the label to the map. The winner group should stick the maximum number of labels and reach the highest height in all games. We can allow students to write the sentences to the concept map directly instead of sticking labels. All students should join a gallery walk to explore the concept maps of the other groups and prepare for a group discussion.

3. The Strategy Tactics

The strategy tactics are to (1) identify an editing technique that enable instructors to write text on the blocks; (2) design sample activities including abstract maps that could be used for teaching various topics. These activities could be used as examples that inspire applied computing instructors to develop their own activities and (3) Test the strategy.

3.1. Identifying an editing technique

My initial idea for creating editable Jenga was to paint the Jenga blocks using the dry-eraser paint. However upon further investigation I ran into two issues. Firstly, there are left over smudges of ink on the blocks after erasing the text. Secondly there is not a lot of writing space on the regular wooden Jenga blocks. The large wooden Jenga cannot be manipulated for safety and mobility reasons. The weight of the large wooden Jenga could reach 20 lb which is not safe when the tower falls.

To address these problems I have used dry-erase tape and found it easier than using the paint as shown in Figure 1. This tape could adhere to wood, metal and cardboard. This inspired me to use Xlarge Jenga which is made from cardboard. The Xlarge Jenga provided enough writing space for complex sentences. Moreover it has a light weight (1.5 kg) which improves the mobility of the game and keeps it safe when the tower falls.

3.2. Sample activities

Three sample activities have been designed to help students to learn through playing Jenga. The activities are designed to support learning abstract topics such as identifying relationships among objects and comparing several objects. This abstraction facilitates customizing the activities for various subjects and disciplines in future. The three activities were conducted in forty five minutes on July 21, 2016. The session plan and the three activity guidelines are shown in Figures 2, 3, 4 and 5 respectively.

3.3. Testing the strategy

The three activities (see Figures 3, 4, and 5) were conducted by the students of the course titled: Object
Oriented Methodologies (SYST39409) in summer 2016 at Davis campus of Sheridan. Quiz 3 was designed to test students on statecharts diagram including relevant diagrams which is the topic targeted by the activities. To evaluate the strategy impact on student learning’ uptake, the quiz 3 marks of the summer 2016 group are compared to the marks of a control group of the same course held in fall 2015. The two groups used exactly the same quiz and have been taught by myself at the same campus. The only difference between the two groups is that the Jenga learning activity was conducted by the summer 2016 group while no game-based activities were used in fall 2015. Additionally, a survey has been conducted to investigate the student feedback on the strategy.

4. Results and Analysis

This section shows and analyzes the results of the following: (1) a quiz on the topics taught using the strategy compared to the results of the same quiz without using the strategy; (2) a survey that determines how much students like the strategy, and (3) the observations of the author during conducting the activity. The results are discussed in the following sections.

4.1. The Strategy improves the class average

The average marks of the summer 2016 group are greater than the corresponding average marks of the fall 2015 group, see figure 6. This improvement could be attributed to the student engagement with the Jenga game activity (the strategy). Students read the statechart-related sentences from the Jenga blocks then insert them into the appropriate places on the concept map prepared for the statechart.

Figure 6. Marks of Quiz3 of two SYST39409 groups: summer 2016 and fall 2015

In this activity, we ask questions that allow students’ sense of purpose to evolve from their collaborative play. The open-ended discussion conducted after the game seems to inspire students to
seek out and create answers for themselves based on their experience. This game allows students to build living models using their own experiences (languages) for the discussed concepts. These models are assets for students’ uptake of learning. The value of these models increases when the student continue to care about updating these models to represent his recent knowledge.

4.2. The strategy promotes student engagement

The student engagement to the activity was observed. Students were seriously focus on playing the game and building the concept maps. The engagement was shown by many student actions such as: a student picks up a block while the other two students have prepared to catch the tower if it happens to fall. Another example noticed is that smiley student who are amused by the unstable tower.

4.3. Students like the activity because they can learn from it more than traditional lecture.

The ultimate goal is to promote diversity in learning activities to accommodate different learning styles of students. A survey was designed to investigate student feedback on the Jenga activity and the adopted teaching approach generally. Figure 7 shows the survey questions.

4.4. No significant difference between regular size and the XL size of Jenga in terms of engagement

The answers of question 6 shows that students enjoyed the two Jenga sizes. Eleven students preferred XL size and ten students preferred the regular size.

5. Deliverables

The deliverables of this project include: (1) this report; (2) two editable cardboard XL Jenga; (3) one editable wooden regular size Jenga; (4) dry-erase markers; (5) board eraser; (6) white-board spray cleaner; (7) instructions of three sample activities and (8) a box for keeping all components. Figure 10 shows these components where each component is referenced by its order in this list except the seventh component which is shown in figures 2, 3, 4 and 5.
6. Conclusion

A new strategy for teaching computer science topics was investigated. The strategy aims to promote engagement through playing a customized Jenga game. The customized Jenga constructs an active learning environment that reveals a model for concepts to learn. This allows students to perceive the model in different ways that fit their diverse experiences. Dry-erase tape, fine dry-erase markers, and cardboard XL Jenga were used to create an editable, large and light weight version of the Jenga. Three activities were designed and conducted in the course SYST39409 held in summer 2016 to test the strategy experimentally. The marks of a quiz on the topics targeted by the activities were used to evaluate the strategy impact on the students’ uptake of learning. These marks were compared to the marks of a control group which studied the same material in fall 2015 but without applying the strategy. The comparison demonstrated an improvement in the class average. Additionally, a survey was conducted to get students feedback on the strategy. The survey showed that students like the strategy because they can learn from it more than traditional lectures. The survey also showed that students like the regular and XL sizes of Jenga.

7. Future work

This work developed a framework of tools and instructions that provide the basis for an effective development environment where robust game-based learning activities can be developed to facilitate learning complex concepts. To get closer to this environment this work requires further investigation in two directions: design more activities and use a 3D printer that enables printing customized blocks.

8. References


Integration of Maker Movement into Education

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Abstract

For educators and schools that are admirer of student centered teaching model, Maker Movement is able to be hope and giant footstep on the right way. Maker Movement may let us study again on our schools in terms of innovation and creativity. Cheapness of new generation technological tools has capacity to make live renaissance on the lessons i.e. Computer Skills, Science, Technology & Design. For someone, it is revolution of industry, resist to consumer culture and democratization of knowledge. There are three main elements need to integrate Maker Movement into education. First and easiest one is tools. Tools concept is wide enough for someone to realize his/her project, all materials that used in project can be considered as tools. Second fundamental element is values, beliefs and rules of Movement. Achievement of this movement depends on its decisiveness about cooperation (ecosystem) of followers, sharing ideas and projects among followers and helping others. Since executive education system and exams cause to make students more competitive and full of theoretical knowledge. Third main element of The Movement is community. Online community serves as digital learning conditions that followers can share programs of their products and their designs. Community followers can be together in schools, museums and library as a maker space to improve knowledge related to their subject or they may do the same things online situation.

1. Introduction

Do-It-Yourself (DIY) culture is a culture of autonomy which encourages individual to repair, produce something or innovate on its own initiative without getting expert assistance. DIY is a culture of autonomy which is based on co-operation in many areas like politics, music arena, art and production, uses tools and technology around a common goal, resists mass production, personalizes goods according to the needs and interests [1].

2. What is “Maker Movement”??

“Maker Movement” occurred in the last decade with a growing DIY mind, with a growing socialization activities focused on interest on private areas prepared for online and producers and most importantly under the influence of technological tools that is getting economical (cheaper) each day. In 2005, Dale Doughtery coined the term “Maker Movement” in the other words producer movement to support rapidly growing DIY culture and started to publish a magazine, in the name of “ Make Magazine” [1]. We face the movement that is combination of technology and DIY culture, as an organization of providing individuals to produce their own products, enhancing creativity, providing independent learning.

Although in the last decade, the term of the productive movement is popular, since the beginning of time humans have been constantly making somethings in their garages, houses, kitchens and workshops. By the fact that, what distinguishes today's manufacturers from other eras is to be able to make robotic and electronic applications open source coded by getting economical micro-controllers, sensors, 3D printers. When tools, mind (Values) and community is more reachable cheaper and easy to use (ergonomic) products appears and producing barrier of individuals disappears [2]. Well then who can describe himself/herself as productive individual? Of course there is no boundary. Producers share their products in broad perspective like kitchen products, sewing-embroidery, weaving, woodworking, robotics and painting etc. This interdisciplinary and centrality of interest contradicts with traditional school system enforcing central exam system and contains inconsistent discipline [5].

As indicated by Zhong& Fan in 2016, three things are important for today's producers. Now let's briefly discuss these.

2.1. Tools

As mentioned above anything that interests them is a tool for producers who have a wide range of products. Using technology to make, repair or customize what we need brings people's interest and learning effort in engineering, design and computer fields [3]. In the production process, existing materials or scrap materials can be reused by bringing together reusable tools in new designs. In addition, they are widely used by producers in electronic cards, sensors, 3D printers, CNC turning, programmable sewing machines, laser cutters, etc.
The recent widespread availability of accessible desktops (3D printer, sensor, CNC ...) has allowed young people to learn how complex technologies work, enabling them to engage in research and development of digital materials and products [4]. These tools, combined with sophisticated technologies, enable young people to learn about circuits, micro controllers, sensors and programming principles. These conveniences help the individual to arrive at the stage of manufacturing, even though he is an amateur, his ideas are cheap and fast. Computer-controlled desktop devices enable high-quality and trouble-free products for beginners. Students who work with computer-controlled instruments are often proud because they can make "real" products that look good [4]. One easy way to work with computer-controlled devices is that digital design files have a certain form. This allows the same product to be obtained wherever the world is, thanks to the internet.

2.2. Values

Another fundamental aspect of the producers' movement is its values, beliefs and provisions. The Producer Movement promises a fun learning environment, experimentation and exchange for the development of conceptual knowledge. They can focus on entering new communities when they want to improve their knowledge and experience areas and learn new things. Failure is not a happy word for students in most educational settings, especially in schools. But as the production movement in question, failure becomes a milestone on the road to "success". It is a system based on another moral value co-operation of the producer movement. The co-operation of the "producer movement" is due to its share ideas and projects and determination to help others. [4]. People share to exchange information, educate others, get feedback and feel connected with the community. As the producer's movement begins to notice people's potentials and the happiness of preparing their own needs, spread every day. This movement we name to as a producer's movement is growing and organizing in church basements, homes, museums, libraries, schools, summer camps, and online situations according to their interest [2]. While today's producers use areas such as public libraries more widely, by the spread of movement they have begun to use churches, museums, and specialized areas for the production movement [5].

2.3. Community

Online communities serve as a digital learning environment that allows people to share the programs and designs of what they produce [3]. Individuals can come together in their own interests either online or in places privately tailored to the interests of the producers. Communities can be found in a manufacturing area, in school, in the museum, together to develop their interest-oriented training, or they can come together online and share information, learn together [5]. Individuals participating in these community areas, both personally and online, are socialized according to their interests. In these environments people socialize, share projects, help other members, comment on projects, make jokes to members, and engage in other forms. Without access to the code samples, digital design files, support forums, and web sites that host how-to videos, it would be more difficult to create project components and solve the inevitable problems that arise [4].

In informal learning communities, analytically separable categories such as identity, institution, and expertise are deeply intertwined [4]. The way that young people identify themselves with a web address can have an impact on future educational experiences, including lessons and chapters, and in part can be predicted to lead to a career in the field [5].

3. School and Production Movement

While the Producer Movement is developing in non-school areas and is mostly involved in adults, there is growing interest in moving towards this movement, especially to increase opportunities for elementary school pupils to participate in design and engineering practices [4]. The Producer Movement emphasizes the power of social learning through joint work and sharing to find problems, problem solving and project development.

The first questions that trainers should ask about the Producer Movement should be in the form of "What is the manufacturing area?" and "What happens in a manufacturing area?" [5]. It is possible to ensure that curriculum and teaching are more productive with the Producer Movement by allowing the trainers to know the production environments closely. The trainers who wants to understand the Producer Movement, should be included in a production workshop according to their branch. In terms of students, the project area of expertise should not be selected at random. Student interests should be determined by questionnaires or tests so that they can participate in interest-based activities. As a starting point for students to discover different production workshops, each workshop has a fairly simple structured activity, allowing students to discover themselves.

One of the important issues to be discussed is how to relate production workshops to the existing curriculum. For the achievements and learning objectives to be supported in the workshops, ideas can be taken from teachers and students, or the activities of online communities about the work done with the field can be looked at.
3.1. Creating a Workshop

After the trainers take the Producer Movement, questions arise as to what kind of production area to prepare for the school or classroom, which tools to include in this area, and how to maintain them [6]. In fact, the simplest part is the tool, because this topic is entirely related to your interest and the curriculum you want to make. Lego, paper, buttons, cloth, parcel band, glue, etc., thousands of tools can be found in the field of production. The real aid or cash donations can be incentivized to sustain and grow the equipment variety, with the products produced by the students in the production areas being sold and used in the financing of the necessary materials.

4. Conclusion

As mentioned above, the Producer Movement has three basic elements; Vehicle, mentality and community. Those who want to adapt the Producer Movement to training, if they adopt a vehicle-centric approach, they will definitely fail because the community and especially the mentality have a critical importance [4]. That's why, if the producer movement is to be associated with training, it is necessary for the training managers to handle this structure together with the three basic feet. If we think that students will turn into maker by adapting new technological tools to curriculum, we will make a big mistake. We believe that a qualified learning will also take place after, without thinking "how question will be asked in the exam from this subject?", students begin to ask themselves "how can I use this information in real life?”. The success of the Maker Movement comes out here. It is seen that Individuals have brought forth products, without the stress of learning, desiring, by enjoying, by exploring.

5. References


Digital Privacy in the Classroom: An Analysis of the Intent and Realization of Ontario Policy in Context

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Abstract

As an increasing number of classrooms become connected to the internet, and as the affordability and ease of use of educational applications correspondingly increase, new questions emerge about the protection of students’ personally-identifiable information. This paper examines the educational policy landscape in Ontario, Canada with respect to digital tool use and the protection of student privacy. Assuming that teacher and student use of the Internet, computers, tablets, smartphones, and other devices may become established as the norm and not the exception, research on digital privacy policy has significance for schools, districts, and educational policy designers. Using Ball’s policy analysis tools [21], the researchers examine relevant educational policies with a view to how they address the protection of student privacy. Early findings indicate that the policy landscape in this instance is unclear with respect to who carries the primary responsibility for the selection of computer applications in classrooms. There appear to be gaps and overlaps in the policies designed to protect digital privacy for students and teachers.

1. Introduction

In an era where more and more schools are gravitating toward online learning and online applications (apps) to support students in their learning [1], the protection of students’ personally-identifiable information (PII) when using these apps has become a new challenge for schools and for teachers [2]. As their increasing affordability makes apps more accessible to more classrooms, it is a challenge for policy designers to keep pace with the rapidly-changing online offerings. When attending educational conferences, the vendor area presents an almost overwhelming array of digital tools that purportedly could be used to augment student achievement and engagement. Most of these new apps were unattainable before the Internet. A recent survey of Canadian teachers conducted by MediaSmarts reveals that 97% of Canadian teachers report that they have at least one networked device in their classroom [3].

As technology continues to evolve, devices have become more portable and more affordable, and the internet becomes more accessible. Given the present rate of innovation, it must be acknowledged that there exists the very real possibility that policies on digital learning risk becoming outdated almost as soon as the next version of software, operating system, or device is created and the newer technology comes to school in the hands of the students or their teachers.

The research presented in this paper provides: a) a detailed review of the literature on digital privacy in the Canadian context which reveals some of the risks that are present for students; b) a review of the policy landscape in curriculum, teacher standards, and school law in one Canadian province; and c) an analysis of how the present policies address the protection of students’ digital privacy and security when they learn online in their classrooms. The policy analysis elements of this research reveal that there are gaps in current policy in Ontario that should be reexamined in light of risks associated with the almost ubiquitous online access which is available now in Ontario schools.

2. Digital Privacy and PII

Understanding the policy approaches to digital privacy protection and the protection of PII is a complex endeavor. In this study, we focus on Ontario which is Canada’s most populous province with over 2 million students organized within 72 district school boards [4]. Most schools in Ontario have internet access [5]. Some national legislation affects education in Canada, such as the Charter of Rights and Freedoms [6] but, for the most part, jurisdiction for education policy has been devolved to the provinces. In the province of Ontario, policies with respect to student privacy and protection of their information fall under three areas of jurisdiction: a) to the province (for curriculum and education law); b) to the municipalities (for freedom of information and right to privacy guidelines); and c) to local
district school boards (for digital citizenship and acceptable use policies). Each of these policy contexts is reviewed within this paper.

The province of Ontario has responsibility for curriculum policies and educational law. Curriculum policies in Ontario, as elsewhere in Canada, are incorporating digital literacy frameworks to support 21st century competencies [7]. Although the curriculum policies in Ontario mention digital privacy and the need to instruct students in how to protect their privacy, it is written into policy texts in indirect ways. A Pan-Canadian review of digital literacy policy identifies that protection of information appears in the form of digital citizenship in some secondary curriculum policies [7]. In the Ontario elementary policies, some cautions appear in the teacher prompts. The Language Curriculum policy for Grades 1-8 assumes that students are online mostly for purposes of research, and the words of caution about privacy online are directed at their parents and through the lens of good digital citizenship. Teachers are provided with prompts to ask students why their parents should worry about internet safety, for example, and what online rules students should know [8].

Experts are beginning to document the risks associated with digital privacy for school-age children [7,9]. According to a 2011 clinical report of the American Journal of Pediatrics [9], young people who are online can experience both benefits and risks from their online activity. Being online can spur creativity and build community, but youth who are online can also be at risk when because of online harassment and privacy concerns. When they visit websites, they leave a digital footprint or an ongoing record of the sites that they have visited. In addition, internet sites can gather information about a child or adolescent and profile them to influence them to make purchases. This type of influence can begin as soon as students begin posting to social media websites online. For this reason, the US congress has set the age of 13 as the minimum age at which students can begin posting [9].

In Ontario, the Canadian and World Studies curriculum policy, Grades 9-10 [10] defines digital footprint as, a trail of information a person leaves when using digital devices. It enables third parties to access data such as an individual’s Internet Protocol (IP) address, the Internet sites that person has visited, and comments he or she has made. (p. 174). We note that this definition appears in a curriculum policy for older students who are better able to make decisions about sharing their personal information. American research indicates that students at present are sharing much more personal information online than they did in the past [11]. They also appear to be relatively unconcerned about third party access to their information, although they do take steps to protect their PII when they are aware of third party use [11].

With respect to the protection of privacy in general, Fernandez reports that studies generally show online users are confused about what materials are private [12]. Though the United States has legislation such as the Children’s Online Privacy Protection Act (COPPA) [13], a Canadian parallel could not be located. Legislation in Canada does exist for online data, the Personal Information Protection and Electronic Documents Act (PIPEDA) [14] but it does not address minors. Municipalities and district school boards have privacy information management policies regarding the sharing, collection and use of student information, but little is known at this time about this legislation’s specific reach into digital communications.

In summary, this review of the literature indicates that students are sharing more personal information than in the past although they may share less when they have some education related to digital privacy [11]. The concept of the digital footprint is recognized in the Ontario curriculum for secondary students [10]. Little is known, however, about the policy response of schools and districts to the concept that a student could create a digital footprint at a vulnerable age for decision-making, and this digital footprint is difficult to erase [11]. The next section reviews the educational policy landscape.

3. Ontario educational policy landscape

The educational policy landscape in Ontario has, at its apex, the Educational Act (RSO, 1990) [15], into which education policies are incorporated at regular intervals. Some of those policies which connect to digital privacy include: a) the Ontario College of Teachers Act (1996) [16]; b) the Municipal Freedom of Information and the Protection of Privacy Act (MFIPPA) [17]; c) Policy/Program Memoranda (PPM) 128 [18] which deals with codes of conduct in schools; and d) subject-specific curriculum policies. Although each of these policies reference the need to protect student privacy, they are not specific with respect to how that should be accomplished.

All of the policies use as a starting point the municipal policy on privacy or MFIPPA [17] and its definitions of Personally Identifiable Information (PII). The College of Teachers Act [16] addresses technology use in schools through their Standards of Practice. The teacher standard states that teachers should, “Use appropriate pedagogy, assessment and evaluation, resources and technology in planning for and responding to the needs of individual students
and learning communities”. A related policy comes in the form of a Professional Advisory on the Use of Electronic Communication and Social Media [19] which describes how teachers should interact online with students. This advisory states that teachers are to “respect the privacy and confidentiality of student information.” It does not, however, address how teachers can protect student privacy when using digital tools in the classroom.

In Ontario, policies requiring immediate action by district school boards can take the form of Policy and Program Memoranda. PPM 128 [18], for example, requires district school boards to create Codes of Conduct. Schools must create their own codes which are reflective of their demographics and geography. Codes of Conduct have, at their core, student safety, though the examples of student safety cited in the memo exist in the physical and not the digital world. An examination of each district’s Codes of Conduct to ascertain whether the local context went beyond the PPM 128 was outside the scope of this research.

One extension to the Code of Conduct would be an Acceptable Use policy (AUP) created by a school district. PPM 128 instructs boards to create a policy that outlines what is acceptable and unacceptable behaviour; an AUP covers this topic on the use of computers, digital tools, and the internet for both teachers and students. In a random sampling of Ontario District School Board AUPs available through a search using Google, the word privacy appears most often in reference to MFIPPA, and if referenced to identity, it does not specifically address the use of digital tools, but rather the general protection of personal identity online.

These findings indicate that, though the provincial policy memorandum is not specific with respect to the protection of digital privacy, some district school boards are beginning to address the protection of students’ information online through the district-level specific Acceptable Use policies. The extent of this practice by the district school boards is not known at this time.

The curriculum policies for Ontario were also systematically reviewed for their direction with respect to the protection of student information. In general, Ontario curriculum policies are organized by elementary (grades 1 to 8) and secondary (grades 9 to 12).

An analysis was undertaken of the most current subject policy, the 2015 Grade 1-8 Health and Physical Education (HPE) policy [20] to determine how it connects privacy and the use of digital tools in the classroom. The foreword or philosophy of the HPE policy states that, “All students must be made aware of issues related to inaccurate information, Internet privacy, safety, and responsible use, as well as of the potential for abuse of this technology, particularly when it is used in a way that has a negative impact on the school community, or to promote hatred” [20]. The word privacy is found 6 times in this policy, mainly as prompts for students in the learning objectives or expectations; the word technology is found 22 times in relation to using it as a pedagogical tool. The word digital is used 6 times, for example digital camera, project, technology, recording and device. From this review, there is evidence in the curriculum that students are learning about online risks. It is worthy of note, however, that the word “privacy” is not mentioned in conjunction with “digital” within the HPE policy.

In summary, then, the Ontario education policy texts show some awareness of privacy issues, but there is no single policy which deals with the issues of student use of digital tools and the protection of students PII.

4. Policy analysis

This study draws on policy analysis tools which have been developed by Ball [21] and others [22]. They theorize that policies have trajectories, relating this to the general definition of a trajectory as the path an object takes when it is launched. The object’s path is influenced by forces such as time and gravity. In a similar way, the path of a policy or its trajectory is also influenced by multiple factors. Ball expands this concept of an education policy trajectory to include considerations of not only the effects of the policy and the responses to the policy, but also the study of the origins of a policy, its possibilities, and its intentions [21]. Policies trajectories are influenced by those who are responsible for interpreting a policy, championing it, and implementing it [22]. Each policy undergoes its own journey as it is interpreted by those responsible for implementing or championing it [21]. This concept of the policy trajectory has also been expanded with considerations of how policies may look different in different contexts [23]. See Figure 1 (below).

![Figure 1. Policy Trajectories [23]](image)

These contexts have been identified as: the
context of influence, the context of policy text production and the context of practice [23].

A need for a policy is established within the context of influence [23]. This is where the policy is initiated and determined through discussions usually at the government level. Pal [24] defines policy as “a course of action or inaction chosen by public authorities to address a given problem or interrelated set of problems” (p.35). Our present analysis of the policies cited here indicates that, the problem of the protection of students’ privacy does exist, but policy responses from the designers of educational policy (context of influence) do not reflect awareness that there is a problem. Some policy guidelines in the form of videos have been prepared by the association of school district business officers [25] but, that aside, no context or presence pressuring the government to create policy to protect students PII in digital contexts has been identified. This directly contrasts the US response to this issue such as the Children’s Online Privacy Protection Act [13] and California's Student Online Personal Information Protection Act [26].

In the context of policy text production, policies are produced as textual representations that become the ‘official’ texts and policy documents [23]. Examples of policy texts would include the Education Act [15], Policy Program Memoranda [18] and curriculum policies cited earlier [8,10]. Our analysis reveals that the protection of students’ PII in digital contexts is largely absent in written text production in Ontario, which indicates a policy gap with respect to policies present in the American educational context of text production.

The context of practice is where the policy and its texts are interpreted and reimagined, in line with Bowe et al.’s assertion that, “Practitioners do not confront policy texts as naïve readers; they come with histories, with experience, with values and purposes of their own” [23, p. 2]. The lack of written policy to specifically address the protection of students’ PII in classroom contexts online, underscores that the context of practice will be an important area of investigation in Ontario with respect to how teachers, principals and district school boards are seeking to protect students’ PII.

Ball argues that education policy is so complex that it defies the application of a single policy analysis tool [21]. Education policy has textual elements and discourse elements. How it is written and published as the formal text may differ from how the policy is discussed (discourse), and it may differ again in practice to such a degree that it defies simple policy analysis [21]. Applying Ball’s policy analysis framework, policy as text and policy as discourse, helps to further analyze the policies cited earlier.

First, it appears evident that there is no single policy in Ontario which relates to the students’ use of online apps in classrooms, and the protection of their PII. This presents as a policy text gap when it is contrasted with American approaches to this issue. None of the aforementioned policies specifically speak to the protection of students’ private information when they are working online at school. (See for example, Leatham, 2017, in press). The Education Act [15] is an example of a policy text which may be enacted differently in different district school boards but there is no centrally-located policy source providing policy text on the topic of the protection of students’ PII.

Policy as discourse is about who can speak, (and when and how) about a policy topic [21]. Thus, the explicitness or brevity of an Acceptable Use Policy enacted by a district school board is one form of discourse, as it demonstrates the areas of emphasis from a school district perspective. Another example of policy as discourse [21] would be the interpretation of the MFIIPPA policy [17] through the videos on digital privacy created the school district business officers [25]. One video describes a framework for using digital apps in the classroom, classifying them by using a green checkmark for ministry or district-approved apps, or a red exclamation mark for unapproved apps. Using these media, they are creating a policy discourse on the topic of PII in the classroom, specifically around the use of digital tools, linking the protection of student information to a municipal policy (MFIIPPA) rather than a specific provincial education policy.

The term policy actors describes those who enact and implement policies [22, 28]. Policy actors may take on different roles during policy implementation – the roles are fluid [22]. School administrators are policy actors who are, in effect, the agents of the government [28]. The role of an administrator in policy work is to oversee the implementation at a school level of policy received from a governing authority [28].

Middle interpreters of policy, such as those working with the Ontario College of Teachers to produce teacher standards have the role of policy transactors, because they have authority to monitor and discipline teachers through the enforcement of policies [22]. Teachers are policy receivers; they are both the agents of the policy and the subjects of a policy enactment. As mentioned earlier, Ontario teachers are supervised with respect to their online activities, and they are responsible for maintaining the privacy of students’ personal information. Yet, the requirement to protect students’ privacy online is never addressed directly but only through
overlapping policies which are difficult to disentangle.

The role of the College of Teachers in creating standards for teacher practice, does not, however, work specifically to require teachers to protect students’ PII. In what might be seen as a policy contradiction, the College of Teachers surveilles student-teacher relations and simultaneously promotes online tools in its professional magazine without providing teachers with any guidance as to which tools might compromise students’ PII.

The Standards of Practice appear to be within the context of influence and the context of practice, attempting to give a solution to the problem of teacher use of social media. Braun et al. (2011) explain that there are many factors which affect policy contexts. Situated contexts include the location of the school and its history. Professional contexts include teachers’ experiences and values. Material contexts include what technology is available for example. External contexts, such as the strength of the local district’s authority also affect how a policy is implemented in practice [22].

The policy cited earlier on school codes of conduct [18] was designed to protect students. Within the provincial legislation is the intent to address cyberbullying and how much personal identity students share online. It does not specifically address how students should protect their PII when engaging in classroom-based applications. Within the context of practice, these codes of conduct are designed by individual schools and districts, and as such, they are influenced by situated contexts [22] which include teacher values, school histories and the availability of technology.

The HPE curriculum policy [20] is also not explicit with respect to the protection of students’ PII though the teaching prompts do address digital citizenship. This illustrates that the policy gap has occurred within the context of text production, leaving it up to the school district, individual schools, or individual teacher practice and values to protect the privacy of students’ PII when they are working online.

In summary, then, our policy analysis of Ontario education which uses policy contexts [23] and policy trajectories and toolboxes [21] indicates that there is no single policy that requires teachers to address the protection of students’ digital privacy and personally identifiable information.

5. Discussion

This paper identifies three different contexts in regards to digital tool use and the protection of students’ PII within Ontario in regards to education; The Education Act, specifically PPM128 [15,18]; the Ontario College of Teachers professional advisory [19] and Ontario curriculum policy [8,10,20]. All three areas connect loosely but not specifically, around the topic of the protection of students’ PII. The Education Act [15] does specify that the municipal policy with respect to the protection of personal information (MFIPPA) [17] must be adhered to in order to protect students’ PII online. Neither policy specifically addresses the protection of students’ PII while undertaking classroom-based activities. PPM 128 [18] states that digital device policies at the district level can connect to the topic of “Respect, Civility, and Responsible Citizenship” (p. 3), which also connects the needs to respect all applicable federal, provincial and municipal laws (p.4); this would include MFIPPA [17]. None of these policies, however, specifically address the required steps for school districts, schools, and teachers to take in order to protect students’ PII. There appears to be policy overlap, but also a lack of understanding of what is occurring within the context of practice.

Within Ontario, districts create their own policies surrounding digital tools and PII. The Peel District School Board, and the Toronto District School Board for example both approach digital tool use differently; Peel sends a letter to parents yearly advising them that some PII may be collected by the use of apps. Toronto D.S.B. leaves the discussion up to parents and their individual schools [29]. Other district school boards have their own screening mechanisms for digital applications. It might be reasonably surmised, based on the analysis provided here, that a teacher who wants to incorporate digital tools may not know where to start or what his or her obligations are with respect to the protection of students’ PII unless the district takes a clear policy stance.

6. Conclusion

Based on the analysis of the present policy context, there appears to be something of a disconnect between the desire of the province to build 21C competencies [32] and clear policies that outline who shoulders the responsibility for protecting students PII at vulnerable ages and stages. It is perhaps not surprising that policies have some gaps, given the speed at which new technologies are emerging in classroom practice. We need to roll up our sleeves. There is work to be done.
7. References


Session 9: Global Issues in Education and Research

Title: The Relations between Educational Attainment, Social Status and Income: Results from the German Labor Market
(Authors: Silvia Annen, Michael Tiemann)

Title: The Organisation and Role of Teaching Practice in Professional Development of Quality Teachers
(Author: Sam Oluseyi Oyekan)

Title: Assessing the Impact of a Student’s Class Level on Satisfaction with Study Abroad Programs
(Author: David Okereke)

Title: Decolonising Knowledge Work in Teacher Education
(Author: Lisa Hall)
The Relations between Educational Attainment, Social Status and Income: Results from the German Labor Market

Silvia Annen, Michael Tiemann
Federal Institute for Vocational Education and Training, Germany

Abstract
This paper examines the relations between employees’ educational attainment and their income as well as their social status, considering the individuals' social background. The data derive from the German BIBB/BauA Employment Survey 2012. The social status is analyzed for the individuals’ first job and their current job using the International Socio-Economic Index of Occupational Status (ISEI). The results show that academic and further vocational qualifications have a positive effect on employees’ income compared to initial vocational qualifications. Especially academic qualifications are positively related to employees’ social status, while over time also (initial and further) vocational qualifications have a positive effect. The individuals’ social background is also positively related to their educational attainment – mostly for the group of academically qualified employees.

1. Introduction
The presented results derive from a project set up to identify typical educational pathways and careers in commercial occupations. The objective is to evaluate the utilization of qualifications and skills of the respective educational programs with regard to occupational and social status as well as income. The research concept combines qualitative and quantitative methods.

From a sociological perspective these educational pathways and careers are ways leading to positions with specific social status. But when we assume that vocational and academic pathways lead to the same position within a company, can we also safely assume that the status of these positions will be the same? The following results mark a first step in answering these questions: Here, we want to assess whether there is a difference in the status of positions achieved by persons with different educational attainments. Especially regarding the outcomes of BA qualifications this has, to our knowledge, not been looked into yet.

2. Methodological design and data
The following results are based on an analysis of the educational attainment in relation to social status, social background and income using data from the German BIBB/BauA Employment Survey 2012 [1], here labelled as “Employment Survey 2012”. This is a representative computer-assisted telephone interview (CATI) survey of 20,036 persons in core-employment. The mean interview time was about 40 minutes. Respondents gave self-assessed information on different aspects of their working conditions, the tasks to be performed, fields of knowledge they have to be proficient in, different qualification and situational requirements and also their qualification paths with up to five completed programs. For more information see [2]. The data are weighted with a structural weight with the German Microcensus 2012 as reference structure. Due to its large sample size the data allows for detailed analyses in large enough sub-populations as well as comparisons between different groups.

3. Theoretical reflections
Focusing on the economics of education besides income further elements can affect educational decisions, like job security and career prospects, satisfaction with training and employment, and social status. Those four aspects are not always entirely discrete and may also be interdependent [3: 319f]. Furthermore several studies in social stratification research have shown that social background influences individuals’ occupational position, and that this effect holds over and above educational attainment [4: 1; 5].

According to the PIAAC data 22% of 25-34 year-old non-students have attained tertiary education although their parents have not. For example in Germany and the United States the share of such upward mobility to tertiary education is even lower than on OECD-average. An interesting fact regarding the monetary output of educational attainment is that when “parents’ education is taken into account,
adults with tertiary education are 23 percentage points more likely than those with upper secondary or post-secondary non-tertiary education as their highest level of education to be among the top 25 percent in monthly earnings, on average” [6: 78].

Both structural and individual aspects have to be distinguished when analyzing the monetary and social outcome of educational pathways. From a structural point of view, differences between individuals can arise in the form of wage differences. From an individual point of view, differences arise when training decisions lead to the development of different competences, which then provide access to different occupations. Following [7] and [8], differences derive primarily from different individual competences. In their reasoning the growing demands for qualifications in the job market are better met by individuals who have had an academic education, since such an education encourages building competences that make it easier to handle complex work requirements. Individuals with an academic education should therefore find their qualifications more usable in the job market.

This argumentation is not free of contradiction [9]. As the requirements for knowledge work are increasing, vocational experience and competence are gaining in relevance for problem-solving in occupational action scenarios [10]. Accordingly, vocational experience and qualifications with a high share of hands-on training should be attributed a high rank.

Based on a human capital approach and research in the context of Skill-Based Technological Change (SBTC) and Task-Based Technological Change (TBTC) [11; 12; 13; 14], it can be assumed that, from a structural point of view, different qualifications lead to different income and employment opportunities. Since the career paths for individuals with a vocational and individuals with an academic education differ in content, the question of social inequality should be considered as well. [15] document that the social background plays a major role in the transition within the educational system. Different career paths are only the second step and follow after an individual’s educational pathway. [16] points out that specific training pathways – in fact, the ones that lead to attractive careers – remain closed to applicants with lower secondary school-leaving certificates due to occupational closing and segmentation. The social inequality described by [15] can thus also originate here. This also shows that educational pathways are segmented in themselves and a kind of “filtering” takes place, where individuals only seldom move out of pre-described pathways. However, during a longer period of employment with the same company, individuals can enter into other segments of the job market in the company, as described in segmentation theory [17; 18].

4. Monetary and social attainment of employees depending on their education

The following paragraphs show results on income differences in relation to educational attainment derived from using the so-called “shortcut-method” [19] to denote the private return to investment in education [3: 314f]. Here we give a brief summary of the more detailed analyses reported in [20].

Gross income differentials are computed with the Employment Survey 2012 data, restricting the analyses to persons with their highest education being either academic or vocational training. For this analysis four levels are differentiated: academic qualification (including all academic education except for bachelors’ degrees), bachelors’ degrees, further education and initial vocational education and training (IVET). The following formula is used to compare income gains due to an academic qualification compared to an average income in this training period for someone with a vocational training: \( r_i = \frac{V_{ia} - V_{ir}}{d'_{ia} \times V_{ir}} \), with \( r_i \) := return to investment in education in occupation \( i \); \( V_{ir} \) := average gross income in occupation \( i \) for those with academic training; \( V_{ia} \) := average gross income in occupation \( i \) for those with vocational training and \( d'_{ia} \) := (estimated) average duration of academic training for occupation \( i \).

The results show that in Germany academic qualified employees on average achieve higher incomes than employees qualified in further educational programs (see table 1). Only comparing bachelor graduates to persons who have completed further education (line two) instead of all academics, this positive effect turns negative (for a detailed analysis of different Occupational Main Fields see [21]). The results are even clearer when using IVET as a standard of comparison. Employees whose highest qualification derives from IVET achieve lower incomes than those with an academic as well as a further training qualification. It is noticeable that the income advantage of employees who hold a bachelor’s degree (line four) is considerably smaller than that of further trained and academic qualified employees.

Overall the results show that academic education as well as further education lead to higher incomes, which means a positive return on investment in post-secondary education above IVET level. Furthermore within the group of academically qualified persons employees who hold a bachelor’s degree take the lowest monetary advantage out of their qualification.

Besides the monetary aspect theoretical reflections suggest that educational pathways and qualifications are related to individuals’ social status.
To evaluate this different levels of education are analyzed in comparison to the social status of employees and their social background. Hereby the following levels of education are differentiated: no formal qualification, initial vocational qualification, further vocational qualification, bachelor degrees’ qualification and other academic qualification.

Table 1. Returns of investment in education in Germany

<table>
<thead>
<tr>
<th>Compared educational groups</th>
<th>Income difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic qualification to further education</td>
<td>2.78%</td>
</tr>
<tr>
<td>BA to further education</td>
<td>-0.85%</td>
</tr>
<tr>
<td>Further education to IVET</td>
<td>7.14%</td>
</tr>
<tr>
<td>BA to IVET</td>
<td>4.8%</td>
</tr>
<tr>
<td>Academic qualification to IVET</td>
<td>8.24%</td>
</tr>
</tbody>
</table>

Source: Employment Survey 2012, own calculations

The analysis of the relation between employees’ highest education and their ISEI-value (International Socio-Economic Index of occupational status [22; 23]) for their first as well as for their current job shows how educational attainment is related to individual social status (see figure 1).

Figure 1. Highest qualification and ISEI of first job

Regarding the first job the results show that the differences between employees with no qualification in comparison to those holding an initial or a further vocational qualification are rather small – albeit the notches in the boxes indicate probably significant differences in medians. However, employees with an academic qualification reach considerably higher ISEI-values in their first job, with other than BA-graduates fairing significantly better than those who entered the labor market with a BA degree. Hereby the range of achieved ISEI-values among academically qualified employees is remarkable and raises questions regarding further deepened analysis for different fields of study and different degrees (bachelor, master, PhD).

Looking at employees’ current jobs the results change gradually (figure 2). Other than in the case of the first job here initial vocational qualifications and further vocational qualifications show an even more positive effect on individuals’ ISEI-values. Although there are considerable overlaps between the boxes of individuals without a qualification and those with an (initial or further) vocational qualification the effect of an academic qualification on employees’ ISEI-values with the same distinction between BA- and other academic qualifications. Also the ranges for all academically qualified individuals in comparison to the results for the first job shrink.

Figure 2. Highest qualification and ISEI of current job

The relation of social background and individuals’ educational attainment is shown in figure 3. The data allow the calculation of the ISEI-value for the job of the respondents’ father at the age of 15, which is used as a measure for the social background.

The results show that lower social background (i.e. lower ISEI-values for father’s occupation) are characteristic for individuals who hold no qualification, an initial or a further vocational qualification. Again the group of academically qualified employees reaches higher ISEI scores. Social status is related to educational attainment of individuals and also, even if not very strong, related to social background. The influence of lower ISEI-values of the father’s job is most remarkable for unqualified individuals and least strong for academics, meaning that a higher education will always yield a higher status, but within a qualification level one’s social background positively influences one’s status. Theoretically someone with no formal qualification but a high status social background could even reach a higher status than someone with an IVET-qualification – but in reality...
the ISEI values only range up to under 90 points, which is where the two lines meet.

Figure 3. ISEI of father's and respondent's current job for different qualification levels

Visual inspection can give first insights, but we will deepen these in two simple OLS regression models. Besides social background as father’s ISEI and educational attainment we also included several control variables which might influence occupational status. Table 2 shows the results for the first occupation.

You can see that indeed social background has a significant, but small influence (0.07*respective ISEI score for father’s occupation, e.g. 0.07*50=3.5) with a theoretical increase of about 6.3 (=0.07*90) points for the first occupation’s ISEI value. This is less than the influence of other academic qualifications as well as high general education. Again, a BA-degree yields less advantage than other academic degrees, but more than vocational qualification degrees.

Table 2. Linear regression on ISEI of first occupation

<table>
<thead>
<tr>
<th>ISEI of first occupation</th>
<th>β</th>
<th>std.err.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-30.05</td>
<td>3.39</td>
<td>0.000</td>
</tr>
<tr>
<td>Occupational qualification (ref.: IVET)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No qualification</td>
<td>-3.23</td>
<td>0.58</td>
<td>0.000</td>
</tr>
<tr>
<td>Further education</td>
<td>-0.70</td>
<td>0.46</td>
<td>0.125</td>
</tr>
<tr>
<td>BA</td>
<td>6.20</td>
<td>0.91</td>
<td>0.000</td>
</tr>
<tr>
<td>Other academic</td>
<td>12.75</td>
<td>0.41</td>
<td>0.000</td>
</tr>
<tr>
<td>ISEI father</td>
<td>0.07</td>
<td>0.01</td>
<td>0.000</td>
</tr>
<tr>
<td>Female</td>
<td>5.39</td>
<td>0.26</td>
<td>0.000</td>
</tr>
<tr>
<td>General education (ref.: no education)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>2.65</td>
<td>2.53</td>
<td>0.295</td>
</tr>
<tr>
<td>Medium</td>
<td>6.97</td>
<td>2.53</td>
<td>0.006</td>
</tr>
<tr>
<td>High</td>
<td>10.50</td>
<td>2.55</td>
<td>0.000</td>
</tr>
<tr>
<td>Age at first job</td>
<td>4.01</td>
<td>0.19</td>
<td>0.000</td>
</tr>
<tr>
<td>(Age at first job)²</td>
<td>-0.06</td>
<td>0.00</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Adj. R-squared: 0.4276 (p=0.000)

Source: Employment Survey 2012, own calculations

In their first job people might start with lower status occupations and positions, especially when they prepare to move up a vocational career path. In these cases one will start with an initial vocational qualification and then achieve further vocational qualification degrees. Table 3 looks at results for respondents’ current occupations, where these career steps could already have been taken.

Table 3. Linear regression on ISEI of current occupation

<table>
<thead>
<tr>
<th>ISEI of current occupation</th>
<th>β</th>
<th>std.err.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>26.23</td>
<td>2.47</td>
<td>0.000</td>
</tr>
<tr>
<td>Occupational qualification (ref.: IVET)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>-1.51</td>
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<tr>
<td>Further education</td>
<td>1.79</td>
<td>0.46</td>
<td>0.011</td>
</tr>
<tr>
<td>BA</td>
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<td>0.90</td>
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</tr>
<tr>
<td>Other academic</td>
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<td>0.47</td>
<td>0.000</td>
</tr>
<tr>
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<td>0.05</td>
<td>0.01</td>
<td>0.000</td>
</tr>
<tr>
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<tr>
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<tr>
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<td>ISEI first occupation</td>
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</table>

Adj. R-squared: 0.5494 (p=0.000)

Source: Employment Survey 2012, own calculations

Compared to the first occupation here we note a distinctive positive reward for further vocational education (1.79). Again, social background is only one factor among others. Interestingly, for the current job one’s vocational qualification becomes less important than with the first job. Now age (also as a proxy for tenure) and the required qualification to be able to work in one’s job notably influence occupational status. The first occupation’s ISEI-value has a considerable effect as well and might effectively even be higher than the influence of a required academic qualification, depending on the ISEI-value of the first occupation.

5. Conclusion

In a nutshell the above analyses document a positive influence of higher educational qualifications on monetary as well as social attainment. While further vocational education and academic qualifications both lead to higher incomes (except for bachelor’s degrees) the results differ when looking at the employees’ social status.
measured by the ISEI. Regarding the latter academic qualifications generally go along with higher social status, but (initial as well as further) vocational qualifications also develop a positive effect on social status over time compared to the group of unqualified persons. Still this effect is linear throughout and the model indicates that vocational qualification might always lead to lower status throughout and the model indicates that vocational qualification might always lead to lower status.

Interestingly social background also seems to favor especially academically qualified employees and to disadvantage especially unqualified individuals.

These results furthermore seem to support the assumption found in German literature on educational decisions, which suggests that besides the higher prestige also a higher wage classification as well as access to a broader set of follow-up programs are central criteria for choosing an academic qualification instead of a vocational qualification [24; 25]. Although so far in Germany the highest share of a cohort enters the vocational training system and gains a respective qualification instead of an academic qualification, there is a continuing trend towards academization as graduates from general schools tend to choose an academic instead of a vocational qualification more often [26]. Those educational decisions seem to be rational against the background of the results presented here. Still it has to be considered that especially further vocational qualifications lead to comparable monetary attainment and that (initial and further) vocational education also develop positive effects on social status over time.

The results raise the question which of the above mentioned criteria influence individuals’ educational decisions and which role equal access plays in this context. This question will be an important element of the follow-up survey to the German BIBB/BAuA Employment Survey 2017/18.

6. References


The Organisation and Role of Teaching Practice in Professional Development of Quality Teachers

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Abstract

Education is often regarded as vibrant instrument and strength of change for sustainable development, stable polity and viable economy of any progressive nation. The school is expected to provide an inclusive training of children and youths to develop creative thinking, entrepreneurial initiatives and critical abilities to earn gainful living through enduring wealth creation in a happy expectancy. It implies putting in place a coherent and functional teacher education that will produce competent teachers, who will discover and nurture the inherent talents of individuals into productive manpower for national development. The operational curriculum of a creative teacher education programme consists of general studies in education, basic studies in educational foundations, studies related to students’ intended field of teaching, teaching practice and research project. Herein a school-based teaching practice becomes a mandatory practical instructional activity for professional development and ethical orientation of quality teachers over a period of time. A purposeful and well-organised teaching practice shall severally inculcate in the prospective teachers the relevant subject knowledge, creative pedagogical skills, rational professional standards and global best practices, which might facilitate their instructional proficiency and work productivity as well as students’ conceptual understanding and academic achievement. This makes the teaching practice a viable quality control mechanism in ensuring meaningful teaching, teacher effectiveness and achievement motivation of learners in classroom practices. Hence, it is suggested that sufficient funding, provision of modern learning facilities, infusion of entrepreneurship and regular training of classroom teachers to improve their instructional delivery and students’ academic achievement are the basic options for quality educational system.

1. Introduction

The rapid changing world of the 21st Century presents new challenges of endless opportunities and realistic possibilities with great expectations from purposeful instructional leadership for human capacity development and progress of nations. Education has been widely recognised as the firm foundation for quality life investment in the process of nation-building process. A functional, comprehensive and equitable education is often regarded as vibrant instrument and strength of change for sustainable development, stable polity and viable economy [1]. It is informed by the fact that education nourishes the enabling capacity and capability of the people for the existence, development and management of resources in any democratic society. School is expected to provide an inclusive training of children and youths to develop creative thinking, entrepreneurial initiatives and critical abilities to earn gainful living. It implies putting in place a coherent and functional teacher education that will produce competent teachers, who will discover and nurture the inherent talents of individuals into productive manpower for national development. This demands a comprehensive teacher education that will embrace the global changes in school curriculum, pedagogy, world of work, economy and development prospects of emerging nations.

Many teacher-training institutions have continually placed more emphasis on preparing the classroom teacher, who will provide meaningful instruction and evaluation that could nurture competent and responsible school graduates. Courses in instructional methodology and in subject matter to be taught are utilised to prepare an effective teacher who will be versed in the formulation of learning objectives, organisation and presentation of good lessons, classroom management, assessment of curriculum contents, and provision of learning guidance. Hence, a school-based teaching practice (TP) becomes a necessary statutory training experience for all student-teachers in practical teaching, professional development, ethical orientation and community service. The intention is to produce vibrant, responsible and competent teachers with professional dexterity in relevant subjects of the school curriculum.

Healthy and brilliant enterprising children are developmental heritage and secured future of any nation. Every growing child as a learner, therefore,
and visionary teachers shall become potent agents of manpower for national development. Such resilient into a crop of competent, responsible and responsive teacher education that will nurture and refine learners demands putting in place a coherent and functional guided discovery and enquiry methods [2], [3]. This physical abilities and ethical orientations through professional knowledge, pedagogical skills and ethical orientations required for excellent performance of their duties.

Hence, the objective of this paper is to highlight the organisation and role of teaching practice in the professional development of quality teachers in Colleges of Education in Nigeria. Efforts would be made to describe the fundamental concept, organisation, challenges, and functions of effective teaching practice as a critical link in the quality education chain of any nation. It is hoped that sufficiently funded and well-organised TP in formidable teacher-training institutions shall provide the preservice teachers with the requisite intellectual stimulation, pedagogical competence and professional standards for effective teaching of subject curriculum contents.

2. Teaching Practice in Teacher Preparation

The school has a vital role to play in the training of children and youths to acquire adequate knowledge and skills to earn gainful living for economic prosperity, social cohesion and political stability in a fast changing world. It implies that the teacher should always view their career progression and learning as a continuing process of academic and professional development of intellectual capacities, physical abilities and ethical orientations through guided discovery and enquiry methods [2], [3]. This demands putting in place a coherent and functional teacher education that will nurture and refine learners into a crop of competent, responsible and responsive manpower for national development. Such resilient and visionary teachers shall become potent agents of social change, economic growth and political development in our quest for sustainable human capacity building, leadership excellence, industrial production and economic prosperity of the citizenry.

Meanwhile, teacher education programmes severally provide the mandatory professional education, training and standards ingrained with the best instructional practices and work ethics for prospective and practising teachers at all levels of education. The main goals of Teacher Education in Nigeria as stipulated in the National Policy on Education [1] are to:

(a) Produce highly motivated, conscientious and efficient classroom teachers for all levels of the educational system;
(b) Further encourage the spirit of enquiry and creativity in teachers;
(c) Help teachers fit into the social life of the community and the society at large, and enhance their commitment to national goals;
(d) Provide teachers with the intellectual and professional background adequate for their assignment and to make them adaptable to changing situations; and
(e) Enhance teachers’ commitment to the teaching profession.

In consonance with sections 94 and 100 (b) of the education policy, what structurally becomes important in achieving the overall philosophy and national goals of Nigeria is for all the practising teachers in our educational institutions to be professionally trained, qualified and registered with the Teachers Registration Council of Nigeria (TRCN), Abuja in consonance with its empowerment Act 31 of 1993. The stipulated minimum qualification for entry into the teaching profession shall be the Nigeria Certificate in Education (NCE) in all the public and private schools namely, primary and secondary schools as well as colleges of education, polytechnics and universities.

The functionality of any educational system is often determined by the quality of the teaching-learning process, which is only as good as the quality of its teachers [3]. A meaningful teacher education for total development of brilliant, creative and decent teachers is usually made of three stages, namely:
1. Initial teacher training in the Institutes, Faculties and Colleges of Education;
2. Induction and orientation of new teachers into the teaching profession, and into their new schools; and
3. Continuing Professional Development (CPD) for teachers.

The operational curriculum for initial teacher training is, therefore, structured on these critical components:
1. General Studies in Education for global orientations toward good human life, cultural harmony, religious tolerance, environmental conservation and secured future of the nation; 
2. Educational Foundation Studies incorporate the general pedagogical principles and basic disciplines in education e.g. Educational Psychology, Curriculum and Instruction, Educational Technology; 
3. Studies related to the students’ intended field of teaching such as Basic Science, English, and Biology; 
4. Teaching Practice that is mandatory for prospective teachers in their chosen teaching subject(s); and 
5. Research Project is compulsory for student-teachers during the last session prior to their graduation.

After the professional education and internship schemes, formal registration and induction of successful education graduates into the teaching profession should be organised by teacher-training institutions, and conducted by the Teachers Registration Council of Nigeria (TRCN). On assumption of duties, the practising teachers at all levels of education system in Nigeria must be encouraged by their schools and TRCN to embrace the mandatory CPD, which keeps them up to date in a rapidly changing world of education and work. It is intended to improve pedagogical competence and inculcate the virtues of professionalism thereby assuring quality in classroom practices and conduct of registered teachers in Nigerian schools. Such CPD opportunities at regular intervals for all the professional teachers to pursue higher education, attend conferences and workshops, or undergo in-service staff training programmes will upgrade their knowledge and skills toward excellent teaching.

3. The Concept of Teaching Practice

Teaching practice is one of the vital components of teacher education programme designed to nurture quality teachers in all human disciplines. Collins English Dictionary [4] defined teaching practice as a practical instructional activity by which the teacher-trainees are given opportunity, in actual school situations, to demonstrate and improve training in pedagogical skills and best professional practices over a period of supervision. It is a kind of apprenticeship phase in the preservice education of teachers, who are sent out to real schools to gain practical and professional experiences by translating educational theories into practice [7]. Herein TP is a compulsory training requirement for quality education assurance in the production of highly motivated and efficient teachers. Of what value is TP in professional teacher development? Whatever the name is called in different climes, effective TP universally embraces the actualisation of all the pedagogical frameworks that refine and facilitate the acquisition of practical learning experiences, purposeful instructional leadership, benevolent work ethics, and excellent service delivery expectations of student-teachers in successful subject curriculum implementation at all levels of education.

4. Challenges Confronting Teaching Practice Exercise

Education is often regarded as a vibrant instrument and strength of change for sustainable development, stable polity and viable economy. This requires the school to produce a crop of diligent, intelligent and efficient teachers in all human disciplines that will raise professionals, experts and captains of industry for the expansive labour market.

However, the basic impediments to creative TP in professional teacher preparation often emanate from the universal barriers to functional education, training and development of any society. All identified threats to a successful TP should be rectified with strategic planning and viable resources. Notable operational and supervisory barriers to effective TP in teacher-producing institutions in developing nations, such as Nigeria often include:
1. Sourcing for TP schools with inadequate transport facilities in difficult terrains and on poor roads;
2. Poor exposure of student-teachers to insufficient micro-teaching technological devices and techniques;
3. Inadequate field monitoring and defective instructional supervision of student-teachers;
4. Non-involvement and uncooperative attitude of subject cooperating teachers in TP schools;
5. Insufficient funds to procure essential resources and defray incurred ancillary expenses;
6. Admission of students of poor academic background without much inclination towards career teaching;
7. Large number of student-teachers in TP schools as heavy workload for supervision and mentoring;
8. Lack of incentives for student-teachers such as Teachers’ Bursary, Scholarships or Students’ Loans;
9. Doing the teaching practice in poorly equipped, neglected and dilapidated schools;
10. Misconception of teaching practice exercise as a period of leave from College or Faculty lectures;
11. Unmotivated student-teachers who chose education course as a last resort;
12. Inadequate period of teaching practice; and
13. Poor language and communicative competence in defective lesson presentation by student-teachers.

The foregoing challenges portend inadequate teacher preparation with multiplier effects on school dropouts, mass failure of students, graduate unemployment, communal insecurity and poverty of the citizenry across the land. It can be deduced that the requisite professionalism and productivity of teacher-producing institutions, educators and student-teachers might severally be hindered in the course of performing their statutory duties.

5. Effective Organization of Teaching Practice

Meaningful organisation and supervision of teaching practice constitute a crucial responsibility of the Colleges, Institutes, Faculties and Colleges of Education. It is seen as a forum to improve the teaching competence, work productivity and professional conduct of prospective teachers. Such a strategic vision would satisfy the critical needs of learners and their communities. The components of any organised teaching practice programme should comprise:
1. The constitution of a viable Teaching Practice Committee (TPC);
2. Conceptual exposition and purpose of teaching practice;
3. Specialized teaching of subject methods’ courses;
4. Well-timed duration for teaching practice in tandem with the current school calendar;
5. Appreciable geographical area of coverage; and
6. Thorough supervision by professionally trained, qualified and experienced teacher educators.

Hence, Oyekan [2] viewed effective organisation of teaching practice as a pervasive task that requires critical reasoning, pooling of resources within and outside the school setting, and sufficient funding to defray incurred expenses by TPC. A purposeful and well-organised TP by teacher-training institutions shall severally inculcate in the student-teachers the relevant subject knowledge, creative pedagogical skills and rational professional standards. This might promote clear teaching with varying instructional methods, blended learning and valid assessment tools.

Effective planning, management of resources, organisation of seminars and workshops for student-teachers, and assessment of practical teaching should be conceived and coordinated by TPC in collaboration with cooperating schools. Members of TPC must be highly experienced professional educators, who are deeply involved in extensive research and effective teaching of principles of education, chosen teaching subjects and their methods’ courses.

Preparation for TP usually begins with exposure of students’ teachers to mandatory methods’ courses in their chosen teaching subjects. Emphasis must be placed on guiding student-teachers in the processes of formulating instructional objectives, writing of lesson plans, use of micro-teaching devices with a variety of instructional materials and methods, construction and marking of measuring instruments, inculcation of healthy lifestyles and maintenance culture, and hints on classroom management. Besides, effective instruction is anchored on provision of functional lecture theatres, classrooms, libraries, laboratories, and workshops integrated with educational media.

As an integral component of professionality (knowledge acquisition) and professionalism, adequate consideration must be given to appropriate duration and timing of TP with regard to the period of academic work in cooperating schools. Current practice of a two-tiered system of twelve (12) weeks for TP should be reviewed to one year for the sake of comparative professionalism and adequate professional development of teachers [3], [8], [9]. The strategic significance of an elongated period of teacher education from 4 to 5 years could inculcate more professional knowledge and ethics, effective instructional supervision and guidance, and redeem the collective image of teachers. A wide geographical area covered by Institutes, Faculties and Colleges of Education may satisfy the students-teachers’ choice, provide more willing schools, benefit host communities, and ensure quality teaching through closer supervision and sharing of experiences by cooperating teachers. It also helps to reduce truancy and nonchalance resulting from posting a large number of 50-120 student-teachers to a TP school.

Furthermore, thorough supervision of teaching might help to ascertain the degree of proficiency, productivity and proclivity of student-teachers during the practical teaching exercises. It is envisaged to facilitate instructional competence and work
productivity of teachers as well as conceptual understanding and academic achievement of students. What must be assessed by Supervisors ought to reflect a variety of professional tasks and qualities that promote best practices of good teachers. A comprehensive Teaching Assessment Format (TAF) should be able to observe and measure lesson preparation and presentation, classroom management and personality of the student-teachers. Collective adoption and use of uniform TAF for evaluating the student-teachers shall elicit clear teaching, promote instructional proficiency and instill a quality control measure in the professional teacher training scheme.

6. Role of Teaching Practice in Professional Teacher Development

At any point in human history, the professional teacher remains central and vital to the success of functional education at all levels. Such diligent, intelligent and efficient teachers are nurtured and sharpened by well-organised teaching practice. A purposeful teaching practice preceded by adequate micro-teaching activities, therefore, will:
1. Inculcate in the prospective teachers the basic teaching skills and professional standards which could facilitate meaningful teaching-learning process e.g. fluent speaking, audibility, questioning and decency;
2. Meaningful reading, good use of the board, effective class management and drawing of diagrams;
3. Expose the student-teachers to the dynamic social life system of the school when they interact with students and staff, use the physical facilities and participate in the curriculum activities;
4. Provide student-teachers an opportunity to engage in self-reflection, and imbibe practical classroom life experiences that make them develop a repertoire of knowledge and skills for problem-solving situations;
5. Identify the strengths and weaknesses of the student-teachers in lesson preparation and presentation;
6. Inculcate the ability to use instructional materials to explain and illustrate basic concepts and processes for greater students’ understanding, retention and achievement someday;
7. Provide an enduring avenue for student-teachers and Supervisors to translate theory into practice: the basis for prompt correction and improvement in professional stature and vision of a rewarding career in teaching;
8. Make student-teachers to be more enlightened and skilled in successful implementation of the school curriculum that integrates modern technology into their classroom instruction, evaluation and counselling: a means to attain greater professional success with the use of multimedia devices in blended learning;
9. Develop desirable interests, attitudes and ideas relative to the teaching profession in student-teachers when their Supervisors act as resource persons, advisers, moral boosters, assessors, mentors and facilitators of adequate mastery of the subject matter, pedagogical skills and professional standards;
10. Acquire the qualities and work ethics of good teachers when the student-teachers participate in other routine work of the school such as co-curricular activities, setting of questions, and marking of answer scripts; and
11. Nurture the prospective teachers and educators when exposed to the manipulation, production and improvisation of instructional materials with imaginative resourcefulness, and pedagogical efficiency.

The foregoing indicates that emerging resilient teachers would have been nurtured and sharpened by educators as lecturers of Subject Teaching Methods’ courses, Cooperating Subject Teachers and experienced College Supervisors in actual classroom situations to enhance professional etiquette and quality education of learners. It becomes pertinent to develop productive teachers as potent instructional tools in functional curriculum implementation and evaluation, classroom management and learning guidance. Hence, TP acts as a quality control mechanism in ensuring meaningful teaching, teacher effectiveness and achievement motivation of learners in classroom practices.

7. Conclusion and Recommendations

A professional teacher is central to any meaningful change, and stability of a dynamic community. Since no education system may rise above the quality of its teachers, teaching practice should be accorded much importance in the initial training in functional teacher education. Bachelors, Master’s, and doctorate degree students should undergo practical teaching towards making total professionals out of them. It becomes imperative to enforce the admission requirements of five (5) credits at Ordinary/Level in Senior Secondary Certificate examinations while the duration of teaching practice is increased from the minimum of twelve weeks to a whole academic session. This will enable student-teachers to be closely guided, mentored and equipped with best classroom practices (e.g. writing of lessons) in the first two weeks of first term, understudy their Cooperating Teachers in the remaining portion of the first term and expect their Supervisors to visit, observe and assess them at least once in a week, for
the rest of the academic year. Emerging teachers are empowered with professional competence to improve students' achievement.

Hence, the critical options for a quality education system include sufficient funding, provision and maintenance of functional facilities, induction and ethical orientation of professionally trained teachers, adoption of supportive educational services, and regular training and retraining of staff to upscale effective instructional service delivery. What is required is sustainable assistance to facilitate and improve the quality preparation of competent teachers with adequate intellectual stimulation, creative entrepreneurship and professional dexterity. Schools might be energised towards sustainable human development for academic excellence, productive work, healthy living, purposeful leadership, and vibrant economy. Student-teachers, therefore, deserve adequate motivation with the award of bursary and scholarships to reduce their financial burden, learning hardships and devote full attention to practical teaching. This lends credence to interventionist policy thrust and supportive posture of education-friendly organizations such as Tertiary Education Trust Fund (TETFund), companies, alumni associations and communities to revamp the crumbling education sector and restore the lost glory of teaching for sustainable development.

8. References


Assessing the Impact of a Student’s Class Level on Satisfaction with Study Abroad Programs

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Abstract

Compelling research on the study abroad field is increasingly focused on examining the holistic impact of student satisfaction to study abroad programs in response to global demand for competitive and internationalized experience. However, there is still a lack of analysis to examine and distinguish satisfaction within the context of student academic levels.

Hence, in this paper, I examined how the academic level of students participating in study abroad programs determines the level of satisfaction with study abroad programs. Initial results indicate a significant decrease in study abroad program satisfaction in graduate students. Also, this paper presents theoretical reasons to support the analysis.

This paper argues for new strategies for policy-makers within higher education to elucidate the differential in satisfaction levels between undergraduate and graduate students in introducing a more nuanced approach in tailoring programs to enrich and internationalize the educational experiences of students.

This study used OLS regression model to analyze data of students who participated in 2014 and 2015 study abroad programs.
Decolonising Knowledge Work in Teacher Education

Lisa Hall
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Abstract

This paper comes from doctoral research focusing on the low number of young Aboriginal teachers currently undertaking and completing teacher education in remote communities in central Australia. The premise of this research was that by listening to the stories of a group of fully qualified and experienced Aboriginal teachers from these communities we might better understand the complex array of barriers, as well as supports, that Aboriginal people from remote communities encounter when they undertake to become qualified. What became clear from the research was that the biggest barrier to Aboriginal people becoming qualified teachers is the legacy of settler colonialism and the ongoing neo-colonial structures of education and knowledge systems. What also emerged is that there are powerful possibilities for co-creation of knowledge if we are willing to engage in a process of decolonising the knowledge work we do.

1. Introduction

While at one time there were numerous teacher education programs in central Australia aimed specifically at supporting Aboriginal teachers from remote communities to undertake teacher education, the current situation is very different. There are now very few Aboriginal teachers from remote communities completing their full teacher qualification. A doctoral study [1] sought to find reasons why this was the case. Through the examination of seven teacher narratives from fully qualified Aboriginal teachers from these communities a clear pattern of barriers and support were revealed. The stories revealed constant and consistent barriers for Aboriginal teachers in the form of the legacy of colonisation in Australia and the continuing neo-colonial ideology that is firmly embedded in our educational systems. The stories also revealed the possibility of working intentionally in a decolonising way. In the spaces where the Aboriginal teachers had been able to work in this way throughout their learning journey, the positive and generative possibilities were clear and exciting. The culmination of this work was the proposal of a framework for doing decolonising work that both hold a mirror up to the embedded and damaging colonial ideologies, but also offers a different way of doing knowledge work together.

2. Literature review

The pathway into teacher education has proven a particularly difficult one for first language speaking Aboriginal adults from remote communities in Australia to pursue. Those who have succeeded have often done so in spite of the educational system they are working in rather than being supported by it. However, as acknowledged by so much research, Aboriginal teachers from within remote communities are uniquely placed to understand children’s early experiences and provide continuity in their education because they share ontological and epistemological knowledge and understandings with the children from their communities [2] [3] [4]. This enables these teachers to undertake the work of a teacher ‘without engaging in imposition’ [5]. The imposition Dewey is referring to is the imposition of one way of knowing at the expense of another. The deep ontological differences that Aboriginal teachers have experienced in their own navigation of the educational system also exist for the children in their home communities. The shared ontological identity between these teachers and their students and the shared language, culture and practices that embody that identity provides these teachers with unique insights about how best to teach students from their home communities.

Why is it then that there remain so few qualified Aboriginal teachers working in remote schools, or for that matter in any schools? In a major five-year project recently conducted in Australia entitled the ‘More Aboriginal and Torres Strait Islander Teachers Initiative’ (MATSITI) it was reported that:

Although the need to increase the numbers of Aboriginal and Torres Strait Islander teachers has been highlighted for many years, little has changed nationally since the 1980s when Hughes and Wilmot (1982) called for 1000 Indigenous teachers by 1990 [6].
This is a point that is repeatedly highlighted in research done in the Australian teacher education space the early to mid-2000s (Herbert 2002; Reid et al. 2004). The purpose of this research was to explore exactly this issue in the context of the central Australian region of the Northern Territory, Australia. This area is geographically located around the hub town of Alice Springs. The teachers involved in this study come from the communities of Ntaria, Yuendumu, Papunya, Utju (Arengonga) and Nyirripi.

The participants were also involved in the analysis work. All teacher participants and the researcher came together to analyse the full set of narratives. This helped to overcome issues of language and cross-cultural understanding as participants had this additional opportunity to clarify their meaning and unpack any metaphors and symbolism used [14]. This was a crucial way of ensuring that important themes in the narratives were not identified solely by one non-Indigenous person. The experiences of these teachers were grouped into seven themes: ‘feeling for family’, ‘learning with marlpa’, ‘mentoring, support and encouragement’, ‘team teaching’, ‘leadership’, ‘exclusion and power’, ‘looking at us level’. Through these thematic groupings the teachers’ voices clearly articulate both the elements that supported them in their success and the elements that presented barriers.

4. Analysis of Findings

In order to better understand the supports and barriers that underpinned the career and learning journeys of the teacher participants in this doctoral research it was necessary to explore the seven themes through some theoretical and philosophical lenses.

The barriers and challenges that emerged from the narratives of the teachers were examined against the backdrop of colonisation in Australia. The specific theories of Whiteness Theory, Critical Race Theory and the theory of colonial mimicry were used to peel back the layers of barriers experienced, as articulated in the narratives, to show the underlying ideologies at play in the context of remote Indigenous teacher education. This analysis showed that inequality played out at a three levels within the system. Firstly, due to the colonial default position within the Australian education system, Indigenous teachers were consistently treated as less equal than their non-Indigenous counterparts. Despite meeting all of the requirements for becoming ‘qualified’ teachers, the teacher participants consistently felt themselves held at arm’s length, and were treated as ‘white but not quite’ as explained by Bhabha’s [15] theory of colonial mimicry. Secondly, educational systems have developed ways of attributing higher status to White/Western knowledge than it does to Indigenous

Figure 1. Remote communities in central Australia [7]

3. Methods and Methodology

This study wanted to begin with the idea of success. Indigenous teachers from remote communities in Central Australia have been successful in completing their teacher education in the past. The research design and methodology were built around the intention and desire to decolonise the knowledge processes involved in research. The participants for this research were chosen using purposive sampling [8] based on the following criteria: 1) Indigenous, 2) fully qualified classroom teacher having completed a four-year Bachelor of Education/Teaching, and 3) from a remote community geographically located in central Australia. There were seven participants who had their narratives recorded. This falls within the commonly recommended number in studies of this kind [9]. In reality the number and nature of participants was determined by the limited number of fully qualified Aboriginal teachers located in remote communities in central Australia.

A narrative methodology was chosen because of its compatibility with Indigenous knowledge systems [10] [11] [12]. The teacher narratives were gathered using un-structured/semi-structured narrative interviews [9] which more closely resemble a ‘yarning’ approach [13]. The recording of the narratives was preceded by a long conversational phase giving each participant the time to fully consider their participation in the research and to be in control of when and where the ‘telling’ would commence. The story telling focused on the whole of career experience of each teacher. Each narrative was recorded over a number of sessions and produced a detailed, in depth, rich account of the experience of becoming and being a teacher. The language of telling was left up to the participant and translation was used where required and often undertaken by the multilingual participants themselves.

The participants were also involved in the analysis work. All teacher participants and the researcher came together to analyse the full set of narratives. This helped to overcome issues of language and cross-cultural understanding as participants had this additional opportunity to clarify their meaning and unpack any metaphors and symbolism used [14]. This was a crucial way of ensuring that important themes in the narratives were not identified solely by one non-Indigenous person. The experiences of these teachers were grouped into seven themes: ‘feeling for family’, ‘learning with marlpa’, ‘mentoring, support and encouragement’, ‘team teaching’, ‘leadership’, ‘exclusion and power’, ‘looking at us level’. Through these thematic groupings the teachers’ voices clearly articulate both the elements that supported them in their success and the elements that presented barriers.
knowledge systems. The Indigenous teachers, as holders of Indigenous knowledge, were subsequently also relegated to a lower status within their schools. Finally, the teacher narratives revealed many examples of mechanisms of systemic Whiteness [16] at work in the experience of the teachers. These ‘tools of whiteness’ were experienced in various forms through leadership styles, culturally biased discourses around conceptions of ‘quality’ and through interpersonal dysconscious racism [17].

The teacher narratives also revealed significant insights into those professional behaviours and programs that supported success in becoming a qualified teacher. What became clear was the central importance of Indigenous teacher education being engaged and embedded in the local context of the teachers’ respective communities. The era of community based teacher education provided important mechanisms for the local community and families to engage in what the teacher education programs were doing. The cohort model of this approach provided crucial support among students and a feeling of cultural safety. These delivery models also provided flexibility and invited opportunities for two-way learning. These models were generative in nature and co-created knowledge grew out of them, rather than the current model of teacher education which offers a one-size fits all standardized and imposed approach.

Based on these findings, as the teacher education system currently stands, it would be an act of irresponsibility to encourage young people from remote Aboriginal communities to pursue a teacher education pathway. To do so would expose them to a form of doubled violence [18], such is the neocolonial imperative of the current standardized system. It allows no room for difference. However, the culmination of this research was to propose a framework for decolonising knowledge work, with the belief that supporting the creation of this kind of knowledge space at all levels of remote Aboriginal education, including teacher education, would provide the foundation for a new generation of young Aboriginal teachers from remote communities to successfully, effectively and meaningfully engage in teacher education pathways.

5. Discussion

The following is a framework for doing decolonising knowledge work, which could be constructive for teacher education. This framework is proposed with the view that it needs to be inhabited and used at many levels of the educational systems – interpersonal, classroom, leadership, community, departmental and faculty. It consists of the following ways of coming together in ‘good faith’ [19] and tools for decolonising knowledge work.

5.1. Four Ways of coming together in ‘good faith’

5.1.1. Decolonising knowledge work is relational.

In order to work together in ‘good faith’ in a decolonising way, we must prioritise relationships. Martin [11] talks about the levels of relationship that people can enter into – being unknown, being known about and being known. She states that ‘To remain ‘unknown’ is a personal decision and regarded as a temporary state of relatedness’. It is possible to see many examples where people working in intercultural spaces have chosen to remain ‘unknown’ to each other. However good decolonising knowledge work requires us to engage in a process of ‘coming alongside’ which Martin [11] suggests ‘occurs as relatedness is expanded, strengthened and deepened from that of being known about to being known’. Many others have talked about the centrality of relationships and relatedness [12] [20] [21] [22] [23].

Rose [18] asserts that relationships are crucial because it is through these relationships among people and between people and place that alternatives to the ways we have done things in the past can arise. We need these relationships to derive from a new sense of ethics, an ‘ethic of connection’, where we see ourselves as ‘mutually implicated humans whose primary duty is to respond to the calls of others’ [18]. Rose calls this an ethics of responsibility not guilt, an ethic that ‘demarcates a path towards decolonization…towards a human condition of living with and for others’ [18]. Decolonising knowledge work requires us to be relational in ways that are mutually vulnerable and responsive.

5.1.2. Decolonising knowledge work allows time.

Parker Palmer [24] suggests that allowing time as part of the process is ‘the work before the work’. He connects this idea strongly to the idea of working relationally. In Palmer’s understanding the work before the work is about taking time to come to terms with and understand our inner landscape, honestly, so that we enter into the process of doing the work in front of us relatively unencumbered. We are then able to enter into a ‘live encounter’ with each other that permits the work that emerges to be trustworthy and ‘true’ from the perspective of the participants. By paying attention to this ‘work before the work’ we ensure that when we actually sit down to do the ‘work’ the experience is good for all who are involved, and the feeling we are all left with at the conclusion is ‘right’, embodying a deep mutual respect for our differences. In decolonising knowledge work this is important because of our radically different ontological and epistemological understandings of time. Carnes [25] explains that non-Indigenous Australians are tuned to a linear
notion of time that belongs to the positivist ideology of the dominant Western paradigm. Rose [18] sees dealing with notions of time as crucial in the work of decolonisation. She asserts that in Western concepts of time ‘life is at war with death’ [18] which in turn creates an obsession with future orientation: everything in our lives is directed towards the creation of a more perfect future and on this basis disrespect for human or other suffering is justified or ignored [18].

This contrasts strongly with notions of time reflected in Indigenous ontologies and epistemologies regarding time. Miriam Rose Ungenmerr highlights the importance of ‘Dadirri’ which she explains is ‘inner deep listening and quiet still awareness - something like what you call contemplation’ [26]. Miriam Rose Ungenmerr also explains in relation to time that, ‘Our Aboriginal culture has taught us to be still and to wait. We do not try to hurry things up. We let them follow their natural course - like the seasons…We wait for the right time for our ceremonies and meetings. The right people must be present. Careful preparations must be made. We don’t mind waiting because we want things to be done with care’ [27].

This will be challenging to those from a Western paradigm with its focus on outcomes, destination, action and quantification [25] who are used to taking for granted Western privilege and authority [29]. But it is an important and necessary part of doing decolonising knowledge work. Rose [18] suggests that the focus should instead be on the ‘possibilities of our present moment’ [18], allowing time in the present moment which will teach us all new and generative ways of working together.

5.1.3. Decolonising knowledge work is engaged in the local context and embodied in experience. Successful and supportive work for the teachers in this study happened when the programs were culturally embedded and contextualised. Many theorists who come from a Critical Race perspective argue that an insistence on context and lived experience provides a defense against the ‘colourblind and sanitized analyses generated via universalistic discourses’ [30]. This view is shared by post-colonial and collectivist theorists. Law and Lin [31] suggest that the benefit of contextualizing and grounding things in experiences is that ‘large issues can be detected in specific practices…the whole can be found within…if we examine these in the right way then large post-colonial knowledge predicaments can be found at work within specific interactions’. The more embedded in the local something is the more we avoid slipping into thinking there is a ‘grand narrative’ [18] [19].

Locating learning in a context that has meaning for participants allows people to draw on the significant knowledge resources of families, culture and land. This approach offers an invitation for the learning to happen collectively and means that a deep level of family and community support could be built up as well as embedded in understandings of what education and teacher education means for people in each context.

5.1.4. Decolonising knowledge work welcomes difference. Difference needs to be central and embraced in the decolonising work we do together. Western ways of thinking and knowing, which are ‘dominated by a matrix of hierarchical oppositions’ [18], have not traditionally coped well with the multiplicity of possibilities that difference allows. They are deeply disconcerted by the notion of ‘pluralism and diversity in language, culture and location’ [32] and much more comfortable with the formation of dualities ‘man/woman, culture/nature, mind/body, active/passive, civilisation/savagery’ [18] which inevitably leads to the duality of dominant and other. Verran [19] talks of how in ‘explaining the other in terms of itself, each actually explains the other away’. As a result of these kinds of Western knowledge practices we now have a state where ‘not all positioned perspectives are equally valued, equally heard, or equally included…some positions have historically been oppressed, distorted, ignored, silenced, destroyed, appropriated, commodified, and marginalised’[33].

Decolonising knowledge work requires us not only to acknowledge difference but to welcome it and the generative possibilities it offers [19]. To grasp these generative possibilities Verran counsels us that we need to be willing to go ‘deeper inside’ the experience of difference before the point of coming to general concepts [19]. If we move too quickly to impose our own epistemic categories on each other then we are continuing the neo-colonial project. We must learn ways to resist and counteract this instinct. Verran [19] suggests that people need find ways to ‘…simultaneously maintain and dissolve difference, in ways that are authentic and generative in terms of their own disparate knowledge practices…and enable the negotiation of useful links that can go along with maintaining significant divisions’. A space that welcomes difference is not a space of binaries or hierarchies, but instead is a space of hybridities [34] and of heteroglossic narratives where there is discursive space for conflicting arguments [18]. Blair [35] reminds us that engaging with the ‘in-between space’ is both challenging and exciting. We need to find ways for different knowledge systems to co-exist, without one seeking
to erase the other, leading to generative learnings and new knowledge. This kind of transformational work must be the agenda of decolonising knowledge work.

5.2. Three tools for decolonising knowledge work

In addition to these ways of being we require some ways of doing the work.

5.2.1. Cultivating disconcertment. Cultivation of disconcertment is crucial to decolonising knowledge work because it is a way of interrupting whiteness and dysconscious racism. So many of the barriers experienced by the teacher participants in this research were directly related to the ongoing and neo-colonial experience of modern Australia. We need to find mechanisms for interrupting these deeply embedded ideological and culturally exclusive ways that dominate the educational experience. Teaching people to pay attention to and dwell in their own disconcertment is one such mechanism.

We must learn to cultivate our own disconcertment in the process of listening. Verran [19] explains this disconcertment as ‘a type of experience that alerts us to the tensions of the relations that exist within what we ‘feel’ as epistemic rightness, something which we are generally unaware of, until that is, it is rent asunder’. Learning to pay attention to moments of ‘disconcertment’ as they arise are ways of staying grounded in the present and learning to live with the discomfort of difference. Verran [19] suggests that the bodily tension we feel when we experience epistemic difference points to the ‘vast inertia of the mesh of institutions, categories, arranged materials, and communicative protocols and processes, which is knowledge’. When our taken for granted ways of knowing are disrupted or challenged by an alternate way of knowing our instinct is self-protection through the invocation of and insistence upon our own single admissible meaning [19]. Rose [18] calls this a ‘narcissistic singularity’ and maintains that we need to find ways of unmaking this if we want to work towards decolonization. Epistemic disconcertment is crucial for doing decolonising knowledge work. To ‘sensitize’ and ‘cultivate’ our disconcertment Verran [19] suggests the need for ‘interrupting tools’. The interrupting tools being proposed here are those of story and dialogue.

5.2.2. Story. Stories must be the main tool of doing decolonising knowledge work. This is because they bring together the four ways of working together in ‘good faith’. Firstly, stories are a way of us ‘becoming known’ to each other [11] or becoming ethnically entangled [18]. To bear witness to someone’s story we discover a mode of responding to that person that ‘exceeds an epistemological determination and becomes ethical involvement’ [18]. It upsets our previous notions of who that person was and helps us to come into a deeper knowledge and understanding of that person. Stories are relational.

Secondly, stories allow time for deep listening to each other. The time allowed for the telling is determined by the teller and they can choose the structure. In a context involving Indigenous tellers this means that there is time to tell the story from a place of cultural safety and respect [11], and in a circular way using thematic repetition, as opposed to the step-by-step, linear progression of a Western structure [36]. Using story means the teller remains in control of allowing as much time as is necessary for the full telling and the role of others is to ‘listen with attentiveness’ [18]. Stories allow time for coming together in ‘good faith’.

Thirdly, stories are personal, based in the local context of the teller and based on experience. Stories or first person accounts are a way of naming one’s own reality in your own ‘voice’ [37] and is grounded in the local and the present. The story might be about past experience but it unfolds in the present moment in the act of telling. Story and experience allows identity and epistemological understandings to be centrally present in learning because our stories are shaped by how we know and who we are. Rose [18] talks about the importance of the ‘web of stories we are able to weave out of our historically grounded experiences’, which help us to explore the ‘local possibilities that illuminate alternatives’. In this way stories are ways of coming together in ‘good faith’ that generate new knowledge between us.

Finally, stories make space for difference. It is in the very nature of stories to allow for difference. There is not only one meaning to any story. The teller’s intention is filtered through their own experiential knowledge, but so too is the listener’s understanding. A multiplicity of meanings is possible in any story. Hokari [38] suggests that it is not about finding a ‘right’ story but widening the possibilities of stories. Variation can provide us with a bundle of possibilities without judgment and different stories will often contradict each but can coexist. Stories offer us a way of coming together in ‘good faith’ that invite difference and invite us as listeners and tellers to become comfortable with that difference.

5.2.3. Dialogue. The point of decolonizing knowledge work is to find generative ways of doing difference. With this in mind, based around our moments of epistemic panic and disconcertment we need to commit to a process of ‘mutual interrogation, which can reveal ‘our’ traditions to ourselves, as much as to the other’ [19]. We need to use mechanisms for ‘finding a way to go on by staying in the feeling of disconcertment…staying with that
moment of existential panic rather than trying to categorize and label things according to our own epistemological understandings and knowledge’ [19].

Dialogue invites a multiplicity of ideas, makes space for differences in understanding and enables a particular sort of metaphysical engagement where the gaps between categories open up the possibilities of the emergence of new ways of going on together that may have been previously unimagined. Dialogue gives us opportunities to deepen our ‘knowing about’ and ‘being known’ by others [11]. It provides people with a chance to talk back on their own terms [18] and requires a non-judgmental space [11]. Rose [18] proposes that dialogue is an ethical alternative to the monologue that too often dominates our ways of being and doing. Rose and Ford [39] also remind us that ethical dialogue requires that we acknowledge and understand our particular and harshly situated presence. This is particularly important given the violence that monologue has wrought on Indigenous people in the past, and continues to do so. It is for this reason that we must find new ways of coming together in ‘good faith’ and tools such as dialogue that can work across chasms of radical harm. This is the purpose of committing to a space of decolonising knowledge Work.

6. Conclusion

If we wish to create effective and meaningful pathways for people from remote communities into teacher education, then we must find ways to do so that do not continue the doubled violence of colonialism and neo-colonialism. We have to find ways of identifying and calling out the assimilationist practices still embedded in our policies, curricula and institutional behaviours, through listening to the stories of those who experience the impact of this assimilatory intent first hand. We need to be honest about the fact that our educational systems, including schools and the courses that prepare people to work in schools, operate within structures of cultural and social reproduction that have embedded in them deep levels of hegemonic ideology. We also need to understand that many of the people who work in schools do not critique the hegemonic ideology that undergirds the structure of our educational systems. It is not enough to focus on just the teacher education of Indigenous teachers. There is also a need for non-Indigenous teachers to be better prepared to work alongside Indigenous teachers and within Indigenous communities.

To respond to this reality, we need to intentionally move all teacher education into a decolonising knowledge space where there can be genuine dialogue and new knowledge building between people from diverse knowledge traditions with a view to finding generative ways of doing difference-work together. This is an optimistic and aspirational stance that assumes that violence and damage are not the only things we are capable of [18]. It requires of us the commitment to finding new ways of coming together in ‘good faith’ based on a commitment to building relationships, allowing time, grounding our work in the local and experiential and welcoming difference. It is in this kind of knowledge space that young Aboriginal people from remote communities can effectively, safely and meaningfully engage in a teacher education pathway.

7. References


Session 10: Course Management

Title: Blue Ocean Strategy in Technical and Vocational Education and Training Sector
(Author: Suresh Kumar Dhameja)

Title: All-In-One: Web-based IDE, Assignment Management, Automated Assessment and Feedback Generation for Programming Courses
(Authors: Xue Bai, Ade Ola, Yingjin Cui)

Title: The Effect of Different Scoring Rules on Responding Multiple-Choice Items
(Authors: Jurado-Núñez A., Rivera-Jiménez J., Leenen I.)

Title: Effective Human Resource Management Practices and Teachers' Job Performance Competency in Nigerian Secondary Schools
(Author: Kelechi Solace Jerry-Alagbaoso)
Blue Ocean Strategy in Technical and Vocational Education and Training Sector

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Abstract

Development in any country hinges primarily on the level of output from its productive population. Often regarded as agents of change and innovation, normally the youth have always been at the forefront of social and economic activities. Technical and Vocational Education and Training (TVET) sector aims to provide systematic and orderly transmission of knowledge, skills and values to develop a workforce that is able to enhance productivity and sustain competitiveness in the global economy. Presently, however, the TVET sector is facing challenges because of too much competition. In order to be relevant to changing times, TVET systems need to be enhanced from time to time. Furthermore, it has to be responsive to the emerging needs, concerns, and issues for employment. Application of Blue Ocean Strategy has been suggested in this paper to offset the global and regional issues affecting TVET. A four action framework has been proposed for enhancing the interest of stakeholders, expanding the outreach of TVET system, while simultaneously bringing down the un-employability of students.

1. Introduction

Education is globally acknowledged as a major vehicle for youth empowerment and transformation. Being the instrument to transmit knowledge, skills and virtues, education holds the key to sustainable development. The Bonn Declaration 2004 noted that “Technical and Vocational Education and Training (TVET) is the master key for alleviation of poverty, promotion of peace, and conservation of the environment, in order to improve the quality of human life and promote sustainable development”.

Three main issues of Relevance, Effectiveness and Efficiency always haunt the quality of the TVET in almost all countries of Asia and the Pacific region in proportion to the importance and emphasis they attach to the TVET system. Improvement in lines with these three parameters will help TVET fulfill the achievement of economic and social gains through giving outputs meeting the objective with optimum utilization of the resources. TVET qualifications do not solely guarantee economic freedom. There is a need to devise certain strategies which could lessen the cut throat competition and thereby keep this sector attractive, productive as well as relevant. Blue ocean strategy is one such strategy which is about creating uncontested market space, making the competition irrelevant and conveying the infinite possibilities for profitable growth.

2. Global and Regional Issues Affecting TVET

According to Park [3], there are many global and regional issues which are affecting TVET sector in the countries of Asia and the Pacific Region. Some of the important issues are: Massive and rapid urbanization, Poverty, Increased focus on knowledge based economy, Education and Training relates issues, Workplace related issues, Environmental pressures and Growing senior citizen’s age group. These are briefly discussed below:

2.1. Massive and Rapid Urbanization

Urbanization may be seen as an opportunity or a threat – an opportunity to share the benefits of modernization and advanced technologies and a threat when it uncontrollably depletes resources, pollute the environment due to overcrowding, and challenge the adequacy of existing services and infrastructure, thereby renders development unsustainable. The impact of urbanization as well as mechanization in the rural sector on TVET comes from the fact that some of the vocations are becoming obsolete and it may require a strategic shift to the TVET sector. Moreover, the globalization is shifting the focus from manufacturing to the service sector in most of the developing countries including countries of Asia and the Pacific region. The resultant employment opportunities in the service sector need to be capitalized by the graduates of TVET sector.
2.2. Poverty

While the world is globalizing and economies are booming, a significant percentage of the population still remains below poverty line. The United Nations through one of its Sustainable Development Goals (SDG) on poverty aims to “end poverty in all its forms everywhere”. TVET sector has to fulfill its social obligation of reducing poverty and providing gainful employment to all. Upgrading the skills of youth by providing technical and vocational education and training will enable them to get wage employment both in public and private sector. In addition, diverting a significant percentage of youth from wage employment to self-employment will help in poverty alleviation through generation of jobs.

2.3. Knowledge-Based Economy

According to Majumdar and Dhameja [4], knowledge-based economy means an ever-increasing demand for a well-educated and knowledge-based skilled workforce in all parts of the economy. All aspects of the way we live and work, the way we produce and consume, are in the midst of a profound transformation as a result of the revolution in information and communication technology and the rise of the global knowledge-based economy. Development of knowledge workers is a very pertinent challenge for the TVET sector. The technicians in the industries are relying more on the knowledge component these days coupled with the Information and communication technologies like the use of computer numerical controlled machines.

2.4. Education and Training Related Issues

Education and Training related issues affecting the TVET sector in Asia and the Pacific region are: (a) Majority of the countries in Asia and the Pacific Region are suffering from the fact that most of the TVET graduates remain unemployed after completing their courses. This is mainly due to lack of not providing market oriented skills. The integration of “employability competencies” in the curriculum and in the training is lacking. (b) There is an inadequate and ineffective linkage between TVET Institutions and related industries. Consequently, curriculum is not regularly updated due to which most of the time the skills are not only inadequate and irrelevant but at the same time professional growth of the students that leads to their employability is a far cry. (c) Monitoring and evaluation of the TVET sector courses and training programs for relevance and effectiveness is not an effective regular feature. Therefore, these courses and training programs are rarely dynamic and responsive to the needs of the workplace. (d) There are inadequate and inappropriate labour market information (LMI) management systems. The LMI produced, in most of cases, are not required by the potential users i.e. education and training organizations. On the other hand, there is also a concern that the labour market information is not optimized to the full benefit of the TVET system.

2.5. Workplace Related Issues

The work place, being the major playing field in the labour market dynamics is also facing some issues regarding their manpower management. These are: (a) TVET courses rarely match completely with the exact requirements of the workplace due to which the graduates are not sufficiently competent to be given independent responsibility at the earliest possible time. (b) Normally, Institute-Industry linkages in adjustment of curricula as per labour market requirements is not a very common practice. Apprenticeship, on-the job training, in-service training and other modes of employees’ development programs need proper attention to cope with the changes in the job requirements. (c) In search for better wages, privileges and compensations most of the local skilled labour goes across borders leaving national industries suffering from the skills/brain drain. Specific job positions get vacant that are crucial for the local industries. (d) The industries are not available with the sufficient information about the required available work force, so as to quickly pick up the most probable right choice first time to have a good substitute. (e) Developing and maintaining in-house training facility is becoming more expensive for the industries and they lack enough information to make the right decision regarding outsourcing the trainings to training and development organization. Proper data base on the Education and Training Institutions is not available. (f) A clear picture of the labour market demand and supply is lacking. There is very little understanding on the labour market sensitivity analysis. Therefore, getting clear signals from the labour market, both for education and training organizations and the policy makers in the education/social and economic sectors, is very difficult.

2.6. Environmental Issues

The fast developments of Science and Technology, which resulted in substantial benefits to humankind, are also contributing significantly for the degradation of the environment. Environmental Conservation is the axis for the economic wellbeing and the peaceful existence of humanity on the surface of the earth. To ensure a rich and a harmonious existence of man in nature, the time has come for man to engineer his interactions with nature judiciously. This forms the basis for environmental management. The TVET sector has to play a very
active role in conserving the environment. The measures could be through waste minimization techniques, Cleaner technologies, Green productivity and Non-conventional sources of technology.

2.7. Growing senior citizen’s age group

Over the past few years, the world's population has continued on its remarkable transition path from a state of high birth and high death rates to one characterized by low birth and low death rates. The result of this transition has been the growth in the number and proportion of older persons. In most of Asia and the Pacific countries, the need for the income generation amongst the older people is much greater. TVET sector has to, therefore, play a vital role in providing these older people employable and self-employable skills.

3. Blue Ocean Strategy in TVET Sector

According to Kim and Mauborgne [2], blue ocean strategy refers to capturing new customers and creating uncontested market space through value innovation. Value innovation places emphasis on the value and innovation in an equal measure. Value without innovation tends to focus on value creation on an incremental scale. This can improve the value but it may not be sufficient to make a separate niche. Value innovation can enhance value for both the TVET sector as well as it stakeholders. Even the range of stakeholders need to be expanded to cover those segments of the society who have so far not directly benefited from the TVET sector but need to be brought into the umbrella of its beneficiaries.

![Value Innovation: Cornerstone of Blue Ocean Strategy](image)

Figure 1. Value Innovation: Cornerstone of Blue Ocean Strategy

Figure 1 shows value innovation as corner stone of blue ocean strategy. As shown in the figure, the creation of the blue oceans in TVET is about driving un-employability of students down while simultaneously enhancing the interest of stakeholders and expanding the reach of the system. This is how a leap in value for both the system and the prime stakeholders is achieved. The expansion in the system is reached through generating more interest by way of better publicity as well as including a host of other segments like aged people and rural community. The un-employability of the pass-outs is reduced through imparting better skills, enhancing relevance of teaching and training through better interaction with the world of work, improving image of the system, and focusing on the better monetary benefits rather than occupying low salary white colored jobs.

3.1. The Four Action Framework

To achieve the dual purpose of enhancing the interest of stakeholders and expanding the outreach of TVET system and simultaneously driving down the unemployment of students, there are four key concerns which need to be addressed.

- Which factors should be created to expand the outreach of TVET?
- Which factors should be raised to come up to industry/world of work standards?
- Which factors should be reduced for maintaining uniqueness of TVET institutions?
- Which factors should be eliminated to remain current with the changing times?

The author has tried to address the above concerns through a Create- Raise- Reduce- Eliminate Grid which is shown in figure 2 below.

<table>
<thead>
<tr>
<th>Create</th>
<th>Reduce</th>
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<tbody>
<tr>
<td>New Customers</td>
<td>Overlapping of Roles</td>
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<tr>
<td>New Opportunities</td>
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<td>Self-Employment Options</td>
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<td>Labour Market Information</td>
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<td>Overlapping of Roles</td>
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<td>Raise</td>
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<tr>
<td>Private Sector Participation</td>
<td>Technological and Professional</td>
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<td>Globalization Opportunities</td>
<td>Obsolescence</td>
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</tbody>
</table>

![Create-Raise-Reduce-Eliminate Grid](image)

Figure 2: Create-Raise-Reduce-Eliminate Grid

3.2. Strategy 1: Create

In this section we will discuss the factors which can be created to increase the outreach of TVET.
3.2.1. New Customers. Ageing Society: Ageing of the human society is a challenge of the 21st century. Older persons should not be perceived as persons merely to be protected, but as valuable human resource who can contribute effectively to the society. There can be three main sectors involved in the formulation and development of the policy framework for the re-training for re-skilling of older workers. These have to be (1) Government Sector, (2) Industry Sector including Micro, Small and Medium Enterprises (MSMEs) and (3) TVET Institutions. The role of the Government is to provide policies and developmental strategies that must be regularly and continuously reviewed and assessed to be responsive to the needs of ageing society. The industry can provide the necessary financial resources needed through investment, recruitment of older workers, and related support systems. It should also provide older-worker friendly environment to ensure the safe, convenient and conducive workplace and working environment. TVET institutions have an important role to play in design and development of training modules necessary for the implementation of re-training for re-skilling courses based on job models provided by government, industry and MSMEs as well as in accordance with the training needs assessment for older workers.

Rural Community: TVET institutes should be mandated to assist rural communities in becoming more economically successful through the mastery of appropriate technical skills. Lessons in micro-enterprise development suggest that, unless technical and craft skills are accompanied by relevant training, the skills training in itself will have little impact on family income. Defining a market and responding to that market is the foundation of most community economic development. In addition, there is a need to focus specifically on the rural women with a view to bring about gender equality.

There is a major focus on rural development particularly in the areas of housing, sanitation, potable water supply, energy, education and communications. Improvements in the housing conditions in the villages have manifold significance. Housing encourages economic activities, generates employment opportunities and creates a base for healthy and hygienic living. There are many technology options available for housing program. While deciding on the choice of technology options for rural housing, efforts should be made to utilize to the maximum extent the local materials, cost-effective and appropriate technologies that have been developed.

In addition, the exorbitantly high costs, technical manpower requirements, organizational set up associated with the conventional systems are not feasible solutions to sanitation problems of rural areas in the countries of Asia and the Pacific. The low cost sanitation systems are an important technology which is cost-effective in many situations in rural areas under a wide range of conditions. Such systems, if designed to the standard that reflect modern knowledge and which are carefully tailored to meet site conditions are much cheaper and just as effective as those designed to conventional criteria. Building trade is a lot dependent on industry for raw material and their transportation. These are some of the areas where the TVET sector can play its unique role for the benefit of the rural community.

3.2.2. New Opportunities. In future six technologies are expected to generate more jobs. These six technologies are: Information Technology, Bio-Technology, Environmental Technology, Space Technology, Cultural Technology and Nano-Technology. Out of these six technologies, TVET sector can mainly focus on two domains of Information Technology (IT) and Environmental Technology as a part of their Blue Ocean Strategy. While a lot is already being done in the area of IT, there is a need that the TVET should also focus on the environment domain as it is the most promising these days. The industrial enterprises need to take a proactive approach to integrate environmental concerns in their businesses. Today an increasing number of entrepreneurs are looking at renewable energy sector as quite promising for investment. It also offers them a competitive edge both in terms of costs saving and in terms of having a technological edge.

3.2.3. Self Employment Options. According to Dhameja [1], Most of the countries in Asia and the Pacific region are poor countries. These poor countries generally face great obstacles in coordinating four elements of progress – labor, capital, resources and innovations. A multi-pronged strategy is needed to give a big push forward to the economy of poverty-stricken nations. Promotion of entrepreneurship in the education system in general and TVET sector in particular is one of the measures for breaking the vicious cycle of poverty. Analyses of the leading companies worldwide reveal that most of the founders of the new technology based firms are highly qualified professionals having sound academic background. The growth and development of Silicon Valley around Stanford University is the finest example of this new trend.

TVET institutions need to make entrepreneurship a part of all the programs they teach. With a view to make this subject more acceptable by all the students, it is desirable that entrepreneurship should be taught as a program for behavioral and attitudinal change in addition to the more common enterprise management approach. This way it will benefit even those students who would like to go for wage employment. Setting up of innovative technology
oriented enterprises by the TVET graduates can be a blue ocean strategy.

3.2.4. Labor Market Information System. There is major potential to encourage interaction and synergies between TVET and labour market policy. Well-prepared and regularly updated labour market information and the monitoring of employment impacts are extremely important in promoting needs related TVET and labour market policy measures. Measures in the area of core competency should not focus solely on formal productive employment but must also involve the informal sector which is the dominant labour market sector in many of these countries. In addition, the private sector development and financial system development play an important role in creating jobs and thus stimulating the demand side of the Labour market – explicitly or implicitly as an intended outcome of efforts to boost the economy – whereas the focus of TVET and the labour market as an area of core competency is on the supply side of the labour market (i.e. the supply of workers) and the intermediation between labour supply and demand.

3.3. Strategy 2: Raise

In this section we will discuss the factors which can be raised to come up to industry/world of work standards.

3.3.1 Private Sector Participation. Participation of the private sector in the governance of TVET systems through some institutional arrangements will be useful in raising the competence of the graduates because of enhanced relevance of courses, better interaction with the world of work, better investments and thereby better facilities and better monitoring and evaluation activities. It will also improve the capacity of the private sector to actively participate in the implementation of an overall TVET strategy for human resources development.

Figure 3 shows the relationship between TVET and the labor market. It can been seen from the figure that while for the initial training the TVET students go to the employment system, for further training the working professionals come to the TVET system itself. Industry is also as dependent on the continuous upgrading of its existing workforce as it is on a supply of skilled new workers. Thus, focusing on the existing workforce is not only an income generating opportunity for TVET institutions but also a mechanism for attracting industrial partnerships. The self-employed need to upgrade their skills to improve family income, and the unemployed need to enhance their skills to find new jobs. Therefore, it is important for TVET institutions to upgrade the existing workforce. This is certainly a blue ocean area as such type of technical or vocational training can only be provided by the local TVET institutions only.

Figure 3. Relationship between TVET and Labour Market

3.3.2 Globalization Opportunities. Increasing globalization is bringing in a lot of opportunities which can be tapped by the TVET sector as a part of its blue ocean strategies.

Globalisation can be considered to have three phases:

- Phase 1: the mobility of capital
- Phase 2: the mobility of goods (and, increasingly, services)
- Phase 3: the mobility of people.

Each of these phases poses distinct challenges for TVET, in terms of adapting to:

- Economic restructuring, as nations adjust to their areas of comparative advantage
- Competition in education markets as citizens seek the best educational opportunities, and foreign education providers enter the market
- The entry and exit of skills embodied in people due to migration flows

As a result of the globalization, free flow of capital and goods is taking place between the countries and this has allowed employers the option to switch investments from one region of the world to another in search of greater returns. For example, Toyota has relocated many of its Australian production plants to China or elsewhere in South East Asia. Similarly, call centers and back-room processing for financial services have moved to India. The consequence has been that employees of these industries of countries from where plants have been shifted are finding themselves redundant, and have to acquire new skills to regain employment.

3.4. Strategy 3: Reduce

In this section we will discuss the factors which should be reduced for maintaining uniqueness of TVET institutions.
3.4.1 Overlapping of Roles. International organizations in charge of human resources development should ensure that there is no overlapping of work amongst them. Each organization should specify its own specialization based on its mandate and should mainly focus on that area. The focus should not be on competition rather on complementing and collaborating with each other. At the country level also it is desirable that the TVET institutes should not overlap the work being done by others. Instead, they should unite under one common umbrella and can do their respective SWOT analysis and operate as per their strengths. It will also provide the much-needed synergy effect to the institutions for the betterment of overall TVET sector.

3.5. Strategy 4: Eliminate

In this section we will discuss the factors which should be eliminated to remain current with the changing times.

3.5.1. Technological and Professional Obsolescence. TVET system must eliminate its technological obsolescence by responding to the rapidly changing technological needs by continuously evaluating and updating curricula, introducing new courses, modernizing laboratories and workshops, and providing for a close interaction with the world of work. Graduates of TVET institutions should be well informed about field practices and technological advances apart from possessing skills necessary for decision making, communication, handling of workers, leadership and so on. Globalization of the world’s economies is calling for the adoption of latest technologies and practices in various sectors. This calls for active collaboration between the technical education institutions and the industry in program design, implementation and evaluation.

4. Conclusion

Technical and vocational education and training (TVET) sector needs heavy expenses required to develop curricula, train staff and equip classrooms for the specialized subjects, which generally cost three times more than academic courses. For most parents and students, it remains a ‘second-class’ education. The truth is TVET provides training but no guarantee for jobs. Even the world’s most sophisticated and expensive program is doomed to fail if the labor market cannot absorb the students, despite their skills and expectations. However, the sector has a tremendous growth potential. Application of blue ocean strategy to TVET as outlined in this paper will help the sector in making its graduates employable, expand the outreach of system, bring world-of-work closer to TVET institutions resulting in a relevant and vibrant system.

5. References


Abstract

One of the best methods of learning in programming courses depends on practical exercises. But preparing and collecting programs manually takes time, and manual grading of programming assignments is a tedious and error-prone task. As a result, students in such courses tend to be given fewer programming assignments than is ideal. This reduces the effectiveness of the whole course. This paper proposes a web-based system that allows instructors to distribute homework online through an automatic grading system and to give fast feedback. The system has been used in actual courses at our university. With the system, instructors were able to assign more homework and provide quicker response.

1. Introduction

One of the primary functions of an academic institution that teaches computer programming courses is to imbue all its students with the ability to program. It has been shown that the most effective methods of learning in programming courses depends on practical exercises [1]. For this reason, a suitable system for programming exercises must be implemented to allow students to put their theoretical knowledge into practice. Lab work, homework and project assignments provide ways for students to translate their theoretical knowledge into designing computer programs and to sharpen their programming skills. Currently, in most programming courses, assignments are distributed through printouts or via Internet (maybe an LMS system or email). Upon completion of these assignments, students submit their work via email or upload them to an LMS system. The instructor then downloads submitted program files for compilation and testing. This manual process is cumbersome and time-consuming. The process works with small number of students; however, when the number of student increases, productivity decreases and human related errors tend to increase on the instructor side. The manual process and the associated problems reduce the number of homework exercises that can be assigned. Another problem with this process is that students are not able to determine whether they are on the right track when devising solutions to a given homework problem. The motivation for designing the system hereby presented is to provide a solution to the problems relating to preparation, distribution and collection of homework and to provide ways to enhance the learning process in computer programming.

The College of Business at Virginia State University offers a number of courses that teach computer programming to its students. These include both basic courses that teach the fundamentals of programming (the first programming course for Computer Information Systems major students) as well as advanced courses that teach more complicated concepts. Almost all of these courses involve programming assignments that require the students to write working programs based on the concepts that are taught. However, programming assignments are notoriously difficult to grade manually in a fair and timely manner. In most cases, one programming assignment would contain multiple files to be downloaded into a particular directory in order to run and grade the program assignments. Matters become worse when some programs may not run properly after downloading. For some programming assignments, students are required to interact with databases, externals files, services provided by a remote server, or an external APIs. Some project assignments require student collaboration and integration of individual programming components into one integrated system. To support these activities, appropriate programming environment must be setup on computers. Our labs are configured to meet the programming requirements. However, most students prefer to setup their own computers with their preferred software so that they can work on assignments and projects at home and at any time that suits them rather than on college lab computers which have restricted hours.

Based on our experience, students usually experience numerous problems when trying to configure their own programming environments and often create incompatibilities with university-configured software environments. For example, for the Java programming courses, some students
struggled a few weeks to set “class path” and other system environment variables in their own computer. These types of problems, even though they can enhance the learning experience, distract students from their class assignments and projects which are the main focus of a programming course [4]. In order to resolve these problems and enable students to focus on their programming assignments and have a more effective learning experience, we have developed a web based assignment and grading system. The system eliminates the need for setting up the programming environments, and the students’ programming assignments can be accessed simultaneously by instructors through the web application.

2. Challenges of teaching programming

One of the best methods of learning in programming courses depends on practical exercises. However, the nature of programming assignments makes them perhaps the most difficult type of assignment to grade. Preparing, collecting and grading homework manually takes time. In fact, the labor-intensiveness of grading programming assignments is the main reason why few such assignments are given to students each semester. When the number of students increases, the number of homework given reduces. This diminishes effectiveness of the whole course. Presented in this section are the major issues that have observed in our introductory java programming courses.

2.1. Software installation and compatibility issues

When students have to install software packages that are required for specific programming courses on their own computers, they can sometimes experience various installation problems, lack sufficient hardware resources, or run into compatibility issues [4]. Software packages sometimes require the installation of additional software components at a specific version level which can lead to greater installation complexity or a failed installation. Furthermore, periodic software auto-updates that may occur during the duration of the course can sometimes interfere with the installed software, which in turn may require reinstallations on systems in the college labs and on the student’s personal computer. When students setup their own development environments, mismatching of the software versions or differences in system configuration may lead to incompatibility issues when the instructor attempts to run the students’ code in different settings. Programs that appear to work on the student’s computer may fail on others. These types of problems, though they may provide some learning experience, distract students from their class assignments and projects, which are the main focus of a programming course.

2.2. Assessment and feedback

The two methods most commonly used in providing feedback on programming exercises are: (i) test-case based feedback and (ii) peer-feedback [3]. In test-case based feedback, a program submitted by a student is run against a set of test cases and the failing test cases are reported back to the student. However, providing feedback of failing test cases is not ideal, especially for beginning programmers who may find it difficult to map the failing test cases to errors in their code. The peer-feedback is helpful, but it is not without problems. Peer-feedback has some inherent limitations, such as the time it takes to receive quality feedback and the potential for inaccuracies in feedback, especially when the majority of the students are themselves struggling to learn the material [3]. Students, especially freshmen, who have difficulties finding the preliminaries of an assignment, often struggle to create a practical solution for an assignment. While working on the assignment, students are not always sure whether they are on the right track or not. When students need instant help in order to continue on a programming assignment, it is hard, if not impossible, for them to get immediate and effective assistance from the instructor because the two parties (the student and the instructor) usually do not have simultaneous access to the relevant files. These problems do not contribute positively to the learning process; they only reduce the productivity of a course and the learning process [2].

2.3. Grading assignments

The nature of programming assignments makes them perhaps the most difficult type of assignment to grade. Preparing, collecting and grading homework manually takes time. The labor-intensiveness of grading programming assignments is the main reason why few such assignments are given to students each semester. As the number of students increases, the number of homework given tends to go down. Of course, reducing the number of programming assignments can diminish the effectiveness of the course.

There are three main components involved in grading of programming assignments: Correctness, Efficiency, and Maintainability [1]. Given any input, a program is considered correct if it produces the desired output. This may include the ability of the program to handle illegal input (by exception handling and/or displaying the appropriate error message, which is part of the desired output). A program is efficient if it performs the intended tasks without consuming too much processing time or memory space. And a program is said to be maintainable if the code is easily understandable and employs devices such as descriptive variable names, comments, indentation, and modular programming. However, both efficiency and maintainability are seldom used in
evaluating student work in practice. Obviously, the most important component when grading a programming assignment must be its correctness, since a program must first be able to perform the basic intended functions for it to be adjudged as a solution for the assigned problem. Thus, most automated grading systems focus mainly on the correctness of a program. However, there is no effective automated grading system available when a program submitted by a student is not performing as desired. In such a situation, there are many different ways to solve the same problem poses a challenge. It can be quite difficult to figure out what type of solution the student is trying to devise and what’s wrong with it. A research paper [6] discussed a new system that will identify the minimum number of corrections necessary to get a program working, no matter how unorthodox the programmer’s approach. Another published work [8] described error models in terms of correction rules that reduce the problem of finding minimal corrections in an incorrect program to the problem of synthesizing a correct program from a sketch. The authors reported that their results show that relatively simple error models can correct on average 64% of all incorrect submissions in a benchmark set. However, as stated in the paper, this approach did not work well when there are conceptual errors or structural requirements.

3. Web-based assignment and automated grading system

We have developed a web-based assignment management system to facilitate learning in computer programming courses. The system provides a stable software development environment for students’ programming assignments and projects. It uses a remote application server to compile and run students’ solutions to programming assignments. The system is a pure web-based application that is accessible from anywhere and from any type of browser. The programming environment that is configured and installed on the remote server includes java runtime environment, compiler, databases, externals files, services, and external APIs. The configuration sets up an environment where all students have access to identical software development environment from any location where there is Internet connection. The common programming environment spares the students of the tedious and, sometimes frustrating, task of configuring individual computers. Students require only Internet access to begin work on assigned assignments and projects.

The web-based assignment management system consists of five basic modules: Editing tool, file management, assignment management and file sharing, automated grading, and online grading and feedback.

3.1. Editor tool

Integrated Java Development environments often require a high amount of computing resources, which may not be feasible on students’ personal computers. Furthermore, there are hardly any free systems available that can be used to manage java programming courses in a distributed fashion. Thus, we embarked on developing the Java-Editor to allow students to work at home or from anywhere with Internet access. The editor provides an interface where users edit, compile, and run their java programs.

![Figure 1. Editor Tool](image)

Figure 1 shows the main windows of the Java-Editor for a student account; the toolbars and other input fields in the middle of the window allow the student to write, edit, compile and debug java programs. The editor tool simulates the command-based environment, where one may specify the arguments for the main method, read data files, or get input from keyboard.

3.2. File Management

The file system (see Figure 2) provides each user with a directory where he or she can manage files. Users can create, rename, and delete directories and files.

![Figure 2. File management tool](image)

User directories are private; no one else has access to the files and directories. Through the upload utility, users can upload files to the system from their local
directories. The system also provides a backup tool, which allows a user to download files or entire directory to local storage. This system is a cloud-based document management software. As such, users can log in to the system from any computer with Internet access to gain access to their files. As a result, students can work on programming work without dealing with installation issues and all the other issues discussed above.

3.3. Assignment Management

There are many online submission systems that allow documents to be distributed and collected online, which have alleviated the tasks of instructors in several ways. However, most of the systems could not meet all required criteria for an ideal submission system [7]. In particular, for programming assignments, all relevant files must be downloaded to the local computer in order to run and test the program. In addition, instructors usually distribute some precompiled java classes that are needed to complete programming assignments. Those class files are posted along with the assignments, and students have to download them in order to start working on their homework assignments. Once completed, students upload all files to the online system before the due date. Providing solutions to these problems was the motivation for implementing an online submission system with features that are generally desired.

![Figure 3. Assignment Management](image)

Figure 3. Assignment Management

Our web based online assignment system eliminates the requirements to download and upload files. The system consists of modules where students can directly access assignments and all shared files after the instructor has posted an assignment (see Figure 3). Students can directly work on the assignment folder when it becomes available, and all files in the assignment folder are editable until the assignment is due. After the due date, students are still able to view the files they created in the assignment folder, but they can no longer modify the files. On the other hand, instructors can access all files in the students’ assignment folder. If students have questions about their work, instructors can test their programs and make comments directly on their files to provide them with instant feedback. This feature has proven to be the most efficient feedback system for programming assignments.

3.4. File Sharing

For all programming courses, instructors need to demonstrate codes in class to explain theoretical concepts or distribute files to the whole class. In our system, each course section has a separate folder which is accessible by all students enrolled in that class; this feature makes file distribution and sharing extremely easy. Students no longer need to download or store files on their own computers.

3.5. Automated Grading, Online Grading and Feedback

Many educators now use automatic grading systems [9]. Computing and information technology educators have begun to call for the introduction of test-driven development in the curriculum [5]. Current systems generally depend on compiling and executing the supplied code. One of the systems allows a student’s program to be checked against given test cases. Our system provides two modules for automated grading. The first module is based on JUnit package and the other on expected output in which the expected output and the result from the student’s program are compared for similarity. Feedback is generated and grades are recorded in the gradebook.

The purpose of feedback is to improve the learning process by reducing discrepancies between current understandings/performance and a desired goal. To be effective, the feedback provided must actually be reviewed, studied, and used by the student to revise the submitted assignments. However, it is commonly reported that students do not read the instructor’s feedback comments, especially when the feedback does not come in a timely manner. To ensure that students use feedback to improve their programming skills, it must be delivered in a timely and actionable manner. But the reality is that programming assignments are still managed manually in most classrooms; hence it may take a few days, or even a few weeks for graders to grade and provide feedback to students. By the time a student receives feedback, he or she could have forgotten the details of the program in question. The student may simply ignore the feedback. Furthermore, for feedback to be effective, it must be concrete, specific, and useful. It should provide actionable information which students can understand and follow to revise their work and reduce the discrepancies between expected outcome and the output of their code.

Our system provides instant feedback which students can use to modify their code. There are three types of feedbacks: compiling errors, runtime errors, and testing cases. Compiling errors are generated by the compiler. However, the error messages are often
difficult to understand for most students in the introductory programming courses. For example, Figure 4 shows the standard output generated by a compiler and Figure 5 shows how our system processes the compiling errors and displays the error information at the relevant location within the code. Students can easily spot the errors in the code and make correction accordingly.

Figure 4. Standard output of compiling errors

Figure 5. Processed error messages

4. Preliminary Experimental Data

In order to evaluate the effectiveness of the testing cases assessment method for programming assignments, we used three programming assignments with different level of complexity from an introductory java programming course. Students completed the three assignments using the system and their codes were assessed with the auto-grading tool. There were 26 students in the evaluated section. For each assignment, we randomly selected three students and downloaded their work to a flash drive and have them evaluated manually by two other professors. Then the grades assigned by professors and auto-grading tool were compared and analyzed. The first assignment included two files, a data file, and a partially completed program file; students were asked to write a method to read data file and count the number of words in the data file. The second assignment included a class file, a driver class, and a data file. Given the driver class and data file, students were asked to create an Employee class. The third assignment involved five files, one date file, and four class files: Employee, Hourly Worker, Manager, and Commission Worker. Given the data file and the Employee class, students were required to design three sub-classes from super class Employee. The grades for the assignments are displayed in table 1.

Table 1. Comparison of the grades assigned by professors and auto-grading tool

<table>
<thead>
<tr>
<th>No.</th>
<th>Assignment 1</th>
<th>Assignment 2</th>
<th>Assignment 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>73</td>
<td>77</td>
<td>75</td>
</tr>
<tr>
<td>P2</td>
<td>72</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>Auto</td>
<td>74</td>
<td>74</td>
<td>73</td>
</tr>
<tr>
<td>P1</td>
<td>65</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>P2</td>
<td>69</td>
<td>69</td>
<td>75</td>
</tr>
<tr>
<td>Auto</td>
<td>73</td>
<td>75</td>
<td>70</td>
</tr>
<tr>
<td>P1</td>
<td>50</td>
<td>85</td>
<td>70</td>
</tr>
<tr>
<td>P2</td>
<td>63</td>
<td>80</td>
<td>74</td>
</tr>
<tr>
<td>Auto</td>
<td>70</td>
<td>85</td>
<td>73</td>
</tr>
</tbody>
</table>

Overall, the grades awarded by the two professors and auto-grading tool were consistent. However, the grades assigned by the auto-grading were slightly higher than the ones assigned by professors. Especially for assignments 2 and 3, the grades assigned by the auto-grading tool were much higher than those assigned by professors. We met and discussed the assignments and agreed the grades assigned by the auto tool were more reasonable. In this scenario, the professor did not look into the details when a program fail to compile or an exception is raised. With the use of 15 test cases for assignment 2 and 20 cases for assignment 3, the auto-grading tool is more likely to evaluate more traits of the program, which would result in a higher score.

5. Conclusion

One of the best methods of learning in programming courses depends on practical exercises. But preparing, collecting and grading homework manually takes a lot of time. When the number of students increases, the number of homework given reduces. As a result, the effectiveness of the whole course is diminished. One way to solve this problem is to distribute homework through an automatic grading system and provide fast feedback. Automatic grading of programming assignments is an important topic in academic research. It aims at improving the level of feedback given to students and optimizing the professor’s time. Its importance is more pronounced as the amount and complexity of assignments increases. Several studies have reported the development of software tools to support this process. Such systems usually consider particular deployment scenarios and specific requirements of specific institutions. However, the quantity and diversity of these tools makes it difficult to get a quick and accurate assessment of their features. This paper proposes a web-based system that automatically grades programming assignments and provides interactive or live comments and feedback to the student. The system accepts a Java application program submitted by a student and returns the test results immediately. The test consists of compiler check, result token evaluation, and JUnit test cases. The system has been used in two actual courses at our university. It has been observed that the accuracy of scoring is very high and the response time of the system is satisfactory. The experience in the classroom is very positive and the system did increase the productivity of the class. A significant increase in
the quality of student codes and a decrease in compiling and runtime errors have also been observed. Moreover, we are working on updating the system to provide features such as plagiarism check and integration of online office hours with the aim of providing live discussion on the programming assignments.

6. References


The Effect of Different Scoring Rules on Responding Multiple-Choice Items

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Abstract

Guessing and associated scoring rules are potential sources of construct-irrelevant variance in multiple-choice tests due to the introduction of random variation and factors unrelated to the trait that the test intends to measure. In this work, we present a new theoretical model, within the framework of Classical Test Theory, which combines these elements. To test this model, we manipulated the scoring rule associated with the multiple-choice item, applying different penalty levels for wrong responses, while omissions always resulted in a zero score. Subsequently, we investigated how the scoring rule affects the uncertainty regarding responding or omitting multiple-choice items as well as the final decision made by the respondent. We used a mixed-effects logistic regression model for the data analysis. As a major finding, the proportion of responses declined significantly when the scoring rule penalized errors, even with low penalties and even when the respondent expressed low levels of uncertainty.

1. Introduction

Multiple choice tests (MCT) are a preferred tool for objective cognitive assessment as it enables a standardized, efficient and cost-effective practice [1-3]. Any assessment method should estimate the latent trait(s) with a minimal degree of error, as the decisions derived from the obtained results usually have important consequences. That is, every test must aim at maximizing validity, reliability, and equality for the respondents [4].

A multiple-choice item typically presents one correct answer and at least one distractor. The format itself entails that right answers not always indicate sufficient dominance of the latent ability the test aims to measure, because points can be scored by guessing. It is even feasible, although very unlikely, to pass a MCT relying only on guessing [5].

Blind guessing seldom occurs, especially in medium or high-stakes examinations; however, educated guessing (EG) is common. The latter is the case when the student is unable to identify the correct answer, but recognizes that some options are more likely than others (e.g., if one or more distractors can be discarded [6, 7]). Overall, guessing represents a source of error that can become a statistical bias [8] and should always be considered when establishing the cutoff point for passing a test or making decisions based on the result on the exam [9].

Many MCTs are scored under the number-right scoring (NRS) rule, which indicates that the exam score coincides with the number of correctly responded items. For a respondent who aims at maximizing his score, this method is an open (and rewarding) invitation for guessing [8]. In other educational settings, by contrast, a correction-for-guessing formula is applied to diminish the construct-irrelevant variance (CIV) introduced by guessing. This is called negative marking (NM) and implies subtracting points for each incorrect response and scoring unanswered questions with zero. As a consequence, guessing luck (GL) is reduced as respondents are discouraged to guess. In this respect, it is important to note that the effect of NM mainly depends on the precautionary speech (rather than in the subtraction of points), prior to the start of the test. Moreover, penalizing errors introduces other factors, like personality traits and attitude towards risk, which affect the guessing tendency (GT) and, like guessing, contribute to the CIV [10-13]. Finally, other factors may affect the score. For instance, flaws in test construction (grammar, vocabulary and syntactic mistakes) may be used to discard options or may even reveal the correct answer. This practice is known as testwiseness [14].

Recently, we proposed a theoretical model that described and integrated some of the before-mentioned components within the framework of Classical Test Theory (see Figure 1 [5]): the observed score (X) comprises systematic effects (i.e., the true score T) as well as unsystematic error (E). The latent trait that the MCT aims to measure (θ) is exclusively associated with the true score, together with GT and other factors as explained above. Specifically, GT relates to the risk or uncertainty perceived by the examinee and the corresponding action taken (viz., responding or omitting the question). GL represents a non-systematical effect, and, hence, is part of the error term. Note that EG is not in Figure 1 as it is a behavior that results from...
the respondent guessing in case of partial knowledge and, as such, is accounted for by the latent trait $\theta$.  

Figure 1. Theoretical model of variables affecting the observed score in multiple-choice items (modified from Jurado-Núñez & Leenen [5]). X: observed score, T: true score, E: unsystematic error, $\theta$: latent trait that the MCT aims to measure, RM: risk management, GT: guessing tendency, GL: guessing luck, OF: other factors.

In this project, we explore in detail the GT of the above theoretical model. In particular, we examine the relationship between the subjective probability (i.e., perceived uncertainty) associated with each option and the decision of selecting a response under different scoring rules. Other approaches that measured students’ uncertainty in formal assessments include the study of Taylor and Gardner [15], which sought to retrieve additional information of the students’ proficiency level from the probability format. However, contrary to the latter study, we asked each examinee to respond in the standard format as well as to express his or her uncertainty by assigning probabilities to each option.

2. Method

2.1. Participants

The study group was composed by 540 second-year medical students distributed among 14 groups of approximately 40 students each (age range: 18–24 years; 75% females). All students whose teachers agreed to participate by signing an informed consent were required to take part in the exam.

2.2. Material

A multiple-choice test consisting of 30 items with three options each was built by selecting and revising items from previous years’ examinations of the Biomedical Informatics II subject. The examination was administered through a self-designed computer program. The program randomized the order of presentation of both questions and options.

2.3. Procedure

Prior to the test, all the students received a detailed explanation of the format and were informed about the consequences of both guessing and selecting a wrong answer under the different scoring rules. We encouraged them to maximize their score and did not intend to suggest a strategy or to discourage guessing. The test itself started with two practice questions, which were not included for scoring. The program asked for two types of response for each item: probability per option (PPO) and response selection (RS). In the PPO section, the respondent was asked to assign a probability (as a percentage) of correctness to each option. For example, if the student considered that an option was “certainly correct”, then he or she should assign 100% to that option and 0% to the two others. If the student was certain about a distractor, but indifferent to both remaining options, he or she should assign 0% to the former and 50% to each of the latter. Any distribution of the 100% among the three options was valid (with the understanding that the program did not allow decimal numbers for the percentages). Students were informed that the score for each item in this section was the probability assigned to the correct option.

The RS section was displayed immediately below the PPO section (note that, for a given item, both sections were simultaneously presented to the student). It presented four possible choice alternatives from which the student had to select one: the three original item options plus the alternative “I would rather not answer”. In this section, the scoring rule changed with each set of six items. For the first six items, the rule was number-right scoring; for the second set, 0.25 points were deducted from the total in case of an incorrect response; for the third, 0.5 points; for the fourth, 1 point; and for the fifth, 2 points. Correct answers always yielded one point and “I would rather not answer” always counted as zero. The maximum score for the RS as well as the PPO section was 30 points.

Both the RS and the PPO section of a question must be responded to advance to the next. The student did not have the possibility to return to or change a previous question. The result on the exam, obtained as the average of the PPO and RS score, contributed 10% of the final score for the course.

2.4. Analyses

As a preliminary analysis, we identified inconsistencies between the responses provided in the RS and PPO sections. A person’s response to an item was considered inconsistent whenever he or she selected an option in the RS section that had not been marked with the highest probability in the PPO section. Those inconsistencies probably pointed to either unintended errors or to strategic decisions (e.g., trying to divide the negative consequences of uncertainty between both sections). In any case, the probabilities assigned in the PPO section might not adequately reflect the person’s uncertainty. Therefore, inconsistent responses were removed prior to further analyses. Furthermore, any person
who gave two or more inconsistent responses was fully removed from the data set.

We used a mixed-effects logistic regression model to examine the relationship between the decision to respond an item in the RS section (i.e., to select one of the three options rather than choosing to “I would rather not answer”) and the uncertainty expressed by the probability distribution provided in the PPO section. In this model, the probability of responding the item is a logistic function of the maximum probability assigned across the three response options in the PPO section. Both the logistic intercept and slope depend on the penalty level associated with the item (as a class variable), the respondent’s sex, and his or her overall proficiency level on the test. To estimate the proficiency level, the final scores on the exam were divided into three groups of approximately equal size, such that each person was placed in either the low, middle, or high proficiency group. Random effects were associated with both the intercept and the slope in order to account for individual differences. We assumed a bivariate normal distribution (with a mean of zero and an unrestricted covariance matrix) for the random effects. The model was fitted using the SAS PROC NLMIXED procedure (SAS Institute, 2013).

3. Results

The average test score was 4.53 points of 10 available. The scores for the PPO and SR sections were 5.77 and 3.29 respectively.

From the 16,200 responses, we eliminated 66 which were left empty due to insufficient time and 668 inconsistent cases (68 single-item deletions and 600 responses from 20 people with more than one inconsistency). The complete distribution of number of inconsistencies per person is shown in Table 1.

Table 1. Inconsistency frequency

<table>
<thead>
<tr>
<th>Number of inconsistencies per person</th>
<th>Freq.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>452</td>
<td>83.7</td>
</tr>
<tr>
<td>1</td>
<td>68</td>
<td>12.6</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>2.4</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Figure 2 consists of two graphs, the one at the left illustrates the proportion of items responded in function of both the scoring rule and the maximum probability assigned across the three response options in the PPO section (which was at least 34%). In order to obtain stable estimates of these proportions, we grouped the items for each scoring rule, such that the assigned maximum probability within groups was approximately equal. As expected, the number of responses decreased as penalty severity increased. The largest difference occurred between NRS and the lowest penalty level under NM.

The graph at the right shows the probability of responding as modelled by the logistic regression analysis. It shows the mean probability under each scoring rule (solid lines) together with the intraindividual variation (dotted lines of the same color, representing ±1 standard deviation). The large distance between these lines indicates considerable differences among individuals with respect to how they deal with subjective uncertainty regarding the decision to respond a question. Note that this represents the variation among individuals after considering the persons’ proficiency level and sex.

The results from the logistic regression model did not show systematic differences between female and male examinees. Under the NRS scoring rule, proficiency was unrelated to the probability of responding. In contrast, under the NM rule, the low proficiency group tended to respond more and this difference increased at higher penalty levels (see Figure 3).

4. Discussion

MCT are instruments in which CIV is consistently present [11]. Partial knowledge, GL, tendency for guessing vs omitting, and risk management are the main contributors to CIV, but they have differential effects depending of the scoring rule. Under NRS, the effect is unsystematic and part of the error. Under NM, in contrast, the effect is more likely to result from the examinees’ decision making under conditions of risk.

The format of the test used in the current study allowed us to explore how the scoring rule affected the management of uncertainty, and particularly, the decision of responding or omitting a multiple-choice item. Theoretically, if the examinee aimed at maximizing the expected score on the test, we anticipated that a response was given whenever the probability of an option being correct exceeded 0.2 for the 0.25-points penalty, 0.33 for the 0.5-points penalty, 0.5 for the 1-point deduction and 0.66 for the 2-point penalty. However, we found that the examinees did not behave under these assumptions. The proportion of responses severely decreased when NM was the rule, even when the penalty was minimal and in spite of low uncertainty.

These findings invite to reflect upon the reasons behind this apparent counter-intuitive behavior. First, respondents possibly misunderstood the (consequences of each) scoring rule. Even though instructions were delivered orally and clearly displayed both at the beginning of every set of questions and before each question in the RS section, examinees did not have experience with the format.
and could have underestimated the significance of responding in the framework of NM, predominantly with high penalty levels.

Second, respondents might have limited ability for expressing uncertainty quantitatively [13, 15]. The latter implies that the assigned probability to each option is not necessarily equivalent to the probability of the option being correct. We assume that the distribution of probability for each multiple-choice item denotes both the examinee’s perceived uncertainty (subjective probability) and the knowledge-based estimated probability that each option has of being correct (objective probability). However, future research should explore on how to distinguish between subjective and objective probability. Caution should be exercised and examinees should be trained in the format if they were to take examinations alike, especially in high-stake contexts [15].

Third, risk perception and management is crucial to analyze decision making under uncertainty. Some people may not aim to maximize their expected score but prefer to avoid threatening situations; some others might have responded inconsistently attempting to maximize expected utility instead of deciding to answer upon the assigned probability. A very common discussion in the literature is the influence of gender upon GT and risk. There are authors that have reported differences [16-18], specifically in the number of omitted questions (females respond less), and some others have argued against them [19]. We did not find statistically significant differences between the proportions of responses per gender. However, authors that address the multiple-choice test format or scoring rules compare the behavior of groups under alternative rules or keep a standard penalty for all the questions.

![Figure 2](image2.png)

**Figure 2.** Proportion of items responded (left graph) and probability of responding an item under the mixed-effects logistic regression model (right graph) in function of the scoring rule and the maximum probability assigned by the respondent across the three response options in the PPO section.

![Figure 3](image3.png)

**Figure 3.** Probability of responding an item under the mixed-effects logistic regression model in function of the scoring rule and the proficiency group.
We did not register any publications which increased the penalty gradually, perhaps this explains the lack of gender relevance towards risk in our work.

Finally, many authors have addressed Prospect Theory [20] to investigate the risk-seeking behavior of people when losses are moderately probable [13, 18, 21]. Bereby-Meyer, Meyer and Flascher [13] suggest that if examinees are expecting low grades, instead of adopting a rational position and guide their decisions towards maximizing the expected value, they decide to guess because the estimated gain is larger than the already known expected loss of omission. In this sense, Prospect Theory is in line with our results, which show a high tendency to answer in the low proficiency group. Moreover, the number of questions per section may have affected risk perception and attenuated the perceived negative consequences of gambling when uncertainty was high and penalties were set [13]. It is clear that if an individual responds in spite of high levels of uncertainty, he or she will evidently respond when uncertainty is low.

5. Conclusion

In conclusion, CIV is inherent to every scoring rule applied in MCT. The examinees’ behavior under circumstances of risk is not always rational, nor solely related to self-evaluated knowledge of the content. The outcomes in these tests include the conception, processing and expression of uncertainty, as well as resolutions made upon personality traits, previous experience, and expected performance.

6. References


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Abstract

The study sought to examine the relationship between human resource management practices and teachers' job performance competency in Nigerian secondary schools. The study was premised on the counter- productive work behaviors of some secondary school teachers in South Eastern State of Nigeria. There was however, lack of local empirical studies on the factors driving this trend. Cross sectional research design was adopted for the purpose of the study using a sample of 226 respondents out of the total population size of 514 teachers in the selected states. Pearson Correlation and regression analysis were used to find out the extent to which HR practices predict teacher's job performance. The research findings showed a positive Correlation between the study variables. The study concludes that there is need for the policy makers and school administrators to introduce and effectively apply HR practices namely recruitment and selection, salary, performance management, staff development programmes and teachers involvement aimed at inducing teachers' performance despite the upcountry setting in which they work.
Session 11: Educational Foundations

Title: Universal Secondary Education in Saint Lucia: The Principals’ Story
(Author: Veronica Simon)

Title: Using Video Reflection to Promote Pre-Service Kindergarten Teachers’ Self-Efficacy
(Authors: Paul Yau-ho Wong, Ellie Lai-ping Chung)

Title: Examining School Elements through Collective Mention: A Case Study of Six Students at a Special Education Day School
(Authors: Rebecca Godwin, Tristan Hann, Karin Sandmel)

Title: Definition of Masculinity and Social Considerations for Schools
(Authors: Vahid Shalchi, Roozbeh Hatami, Sirous Tabrizi)
Universal Secondary Education in Saint Lucia: The Principals’ Story

Veronica Simon
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Abstract

Caribbean countries have embraced the Education for All (EFA) goals identified at the 2000 World Education Forum in Dakar and have incorporated them into national education reform strategies in order to improve access, equity and scope in the provision of education to their citizens. In particular, Universal Secondary Education (USE) was identified as a critical pillar of economic development and empowerment of the region. Although the Organization of Eastern Caribbean States (OECS) had, since 1991, identified the need for a sub-regional strategy for education reform which included expansion of secondary schooling, few countries had taken this intent very far prior to the impetus provided by the signing of the Dakar Framework. Saint Lucia introduced USE in 2006; however, as is often the case in the sub-region, there is little documented information on any aspect of the implementation of this policy and its impact on schools. The implementation of policies such as the USE depends heavily on the engagement, creativity and administrative skills of principals, but their contribution is often taken for granted with little attention paid to their daily struggles or grounded points of view. This research, in recognition of the critical role played by school principals in implementing and managing change, seeks to document their perceptions of the USE and the challenges posed by its implementation, as well as the strategies and practices employed in an effort to promote its success within their schools. Qualitative data was collected through in-depth interviews of, and the administration of a short questionnaire to, five school principals. Participants were purposefully selected from schools which were directly impacted by the USE. The findings reveal that ten years after the implementation of the USE in Saint Lucia, these schools continue to be plagued by a plethora of challenges related to procedures used to assign students, level of student performance, impact of social issues and curriculum constraints; nonetheless, principals have employed some creative approaches to the identified challenges in an effort to increase student retention and performance. The paper concludes that grounded feedback from principals is critical to any future policy decisions which attempt to improve the USE experience and fully achieve its goals. It also recommends the documentation and sharing of best practice as a means of providing useful supportive tools to struggling principals and schools.
Using Video Reflection to Promote Pre-Service Kindergarten Teachers’ Self-Efficacy

Paul Yau-ho Wong, Ellie Lai-ping Chung
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Abstract

Teaching practicum is a core element that is embedded within teacher education programs for pre-service teachers to try out pedagogy and improve their teaching skills based on field supervisors’ feedbacks. However, supervisors who are used to handwritten down student teachers’ performances may rely on their retrospective memory to give feedbacks during post-teaching meetings with the students. In this connection, those feedbacks may lack adequate support due to insufficiency and unauthenticity of evidences provided and the quality of supervisions will be influenced consequently.

Computer technology has been applied in education settings since two decades. In particular, mobile computer such as tablet and smart phones devices have been commonly used in enhancing students’ learning and teaching. Among all applications of devices, the use of video to analyze teaching has a large scope of development in promoting teachers’ self-efficacy (the belief of his or her capabilities to bring about desired outcomes of student engagement and learning). While research has shown that teachers’ self-efficacy are related to effective classroom instruction and students’ academic achievement, few research has examined the use of video reflection in promoting pre-service kindergarten teachers’ self-efficacy. Through reflecting on authentic teaching scenarios captured by supervisors’ video recording using iPads, pre-service teachers are believed to be able to focus on improving specific teaching and classroom management skills. In the long run, the provision of sufficient authentic evidences for teaching reflections is expected to enhance teachers’ self-efficacy.

Sixteen field supervisors and 128 pre-service teachers (recruited from the Programs of Higher Diploma and Bachelor Degree in Early Childhood Education) participated voluntarily, in which each supervisor was trained on using an iPad to capture video and pictures. All pre-service teachers were asked to rate their levels of self-efficacy before and after the iPads were being used by their supervisors in their teaching practicum. Results indicated that there was a significant increase in student teachers’ self-efficacy after going through the process of video reflection by using iPads. No difference in self-efficacy was found between pre-service teachers of the two programs. In addition, both supervisors and student teachers showed positive attitudes towards the use of iPads. Qualitative findings indicated that student teachers perceived that iPads provided concrete evidences to facilitate their memory recall and self-reflection, especially in the micro-teaching aspects. However, some student teachers felt ambivalent and embarrassed about using iPads because they concerned about their errors would be magnified by their supervisors. Supervisors felt that iPads could provide concrete evidences to students for reflection but they concerned about their technical capability to use it effectively. Current findings have implications for teacher training institutions and school principals in relation to the use of video reflection in promoting teachers’ self-efficacy.
Examining School Elements through Collective Mention: A Case Study of Six Students at a Special Education Day School

Rebecca Godwin, Tristan Hann, Karin Sandmel

Johns Hopkins University, United States

Abstract

This paper presents and utilizes a method to explore and describe a school using the voices of those within it. Six case studies of students with special needs attending a special education day school in the United States provide data for the analysis. Qualitative coding of student-cited elements of the school allows for categorization of the elements by degree of collective mention by students. The analysis reveals the elements at the forefront of student focus, ranging from academic content structure to cultural and environmental contexts. These elements are presented as a holistic conceptualization of the school experience, drawing attention to voices and perspectives that are often overlooked when describing schools through quantitative external accountability measures. Implications for educational research, accountability systems, and school improvement efforts are discussed.

1. Introduction

In the age of external accountability, schools are increasingly described through numerical metrics of student, teacher, and school-wide performance [1], [2]. These quantitative measures are used with the expectation that they will lead to school improvement [1], [3], however, they insufficiently describe the complex experience offered by a particular school [4], [5] and lead to a lack of understanding of the school context. The measures provide no insight into the genuine experiences and perceptions of the people within the school; this qualitatively-oriented piece is ignored. School improvement efforts based only on external measures may consequently be missing key information for successful implementation.

Perhaps more importantly, external accountability measures disempower and silence those within our schools [4]. Student voices, for instance, are largely absent in external accountability measures. Yet students form a particularly important part of the internal experience of a school; they live the school experience every day and can therefore be considered experts in describing it. Their perceptions of the school context could provide detailed understandings and insights, and they therefore warrant recognition. Teachers, parents, and administrators also live this experience in differing ways unique to their roles within the school; their voices hold understandings of the school that are inadequately uncovered through external accountability measures.

Alternately, the use of internal accountability has increased both in contrast to and in collaboration with external accountability. The internal accountability system involves using in-school practices to promote school improvement and opens the door for a more internally-focused understanding of schools [6]. Inquiry-minded practices that reflect and focus investigation on the ideal, the actual, and the gap between provide an opportunity for internal accountability systems to integrate qualitative measures and to allow the voices of those within the school to be heard. We argue that these voices should be included in these internal accountability systems, and we demonstrate a method with which to elicit, organize, and consolidate these voices in describing and explaining the school experience.

This study aims to form and present a more holistic description of a special education day school through the qualitative conceptualizations of different groups within the school, bringing focus to largely ignored components of the internal experience. Particular focus in this paper is given to students, allowing their voices to form the school description. The silencing of student voices in current measures used to describe schools is especially problematic in the case of students with special needs, as these students may have different understandings of, responses to, and desires for their school experiences. Their perspectives are therefore vital to understanding a school.
2. Methodology

In this paper, element is defined as a component of the school experience that exists within the school. An element can be offered intentionally as a conscious part of the school (such as an action or service that the school is providing) or can exist as an abstract and/or intangible part of the school (e.g. supportive presence). The term domain is used in reference to a conceptualized grouping/entity that is part of the composition of school.

These elements are described in terms of how active they are, or the degree to which they derive energy from various domains (e.g. students, teachers) within the school. The energy within an element is conceptualized as the capacity or power that the element is deriving. Energy can be intentionally dedicated or unintentionally directed to an element. For example, a weekly school assembly that requires several staff members’ and students’ time and effort to plan and execute is receiving intentional energy from those individuals, whereas the acute awareness and recognition by parents, students, and staff members of the weekly assemblies compared with other school events is an unintentional prioritized noticing of the element by those domains. Both the intentional dedication of energy and the unintentional directing of energy to an element contribute to that element’s power and capacity, increasing its level of activity.

Rather than simply asking those within the school to describe and focus on specific elements of the school that were of interest to the researcher, broad prompts were intentionally used to guide the interviews. This allowed for the elements receiving greater amounts of intentional and/or unintentional energy to come up naturally through the thoughts and dialogue of those in the different domains, rather than artificially through directed answers to more specific questions.

2.1. Research question

How can the collective mention of elements be used to understand how different groups (domains) within a school are conceptualizing the school?

The presented study investigated the student, parent, teacher, and administrator domains (i.e. groups) of a school. This paper provides findings from the student domain.

2.2. Sample

This study was conducted at a private day school (name has been changed) serving K-12 students with mild/moderate disabilities in the mid-Atlantic region, Dowsland Youth Academy (DYA). Student needs consist primarily of learning disabilities and ADHD, and most students have not experienced success in previous schooling settings.

In selecting a sample for the study, the researchers made three requests:

1. That two students would be selected from each of the following grade ranges: elementary (grades 1-5), middle (grades 6-8), and high (grades 9-12).
2. That each of these age-group pairs include one female student and one male student.
3. That selected students be able to participate in interviews without experiencing stress or anxiety due to social-emotional or communication needs.

The school selected six students based on these three requests. The school also considered the degree to which family members would be available to and willing to participate in interviews.

Table 1 provides demographic information for the sample. The sampling procedure, number of participants, and type of analysis all limit the generalizability of findings. We do not claim that our case study findings are descriptive of all students at the school, or that they are generalizable to other students with special needs in other school settings.

Over the span of approximately six months, a variety of data were collected. The majority of the data for this particular analysis come from semi-structured audio-recorded interviews. Thirty-nine interviews lasting approximately 30 minutes were conducted with students, parents, teachers, and administrators. The interview structure directed participants to describe their experiences at the school (“Describe a normal day for you at DYA”, “Tell me a story about [the student’s] struggles, progress, or success”, etc.). Field notes, classroom observations, participant work samples, IEPs, and diagnostic evaluation documents provided supplementary data for the analysis.
Table 1. Student demographic information

<table>
<thead>
<tr>
<th>STUDENT*</th>
<th>GENDER</th>
<th>AGE</th>
<th>ETHNICITY</th>
<th>GRADE LEVEL</th>
<th>TIME IN SCHOOL</th>
<th>DISABILITY CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORY</td>
<td>M</td>
<td>18</td>
<td>Black or African American</td>
<td>11</td>
<td>4 years</td>
<td>Specific Learning Disability</td>
</tr>
<tr>
<td>RUTHIE</td>
<td>F</td>
<td>17</td>
<td>White</td>
<td>11</td>
<td>2 years</td>
<td>Other Health Impairment</td>
</tr>
<tr>
<td>JACOB</td>
<td>M</td>
<td>13</td>
<td>White</td>
<td>7</td>
<td>1 year</td>
<td>Cognitive Disorder NOS</td>
</tr>
<tr>
<td>SAMANTHA</td>
<td>F</td>
<td>13</td>
<td>White</td>
<td>7</td>
<td>1 year</td>
<td>Specific Learning Disability</td>
</tr>
<tr>
<td>KATHRYN</td>
<td>F</td>
<td>13</td>
<td>White</td>
<td>5</td>
<td>2 years</td>
<td>Specific Learning Disability</td>
</tr>
<tr>
<td>SEAN</td>
<td>M</td>
<td>10</td>
<td>White</td>
<td>3</td>
<td>3 years</td>
<td>Specific Learning Disability</td>
</tr>
</tbody>
</table>

*Pseudonyms have been used for all student names.

2.3. Analysis

Our analysis of DYA and its elements utilized the data sources which are relevant to our conceptualized domains, giving priority to data that directly captured the voices of the individuals within the school. Analysis of the student domain, the focus of this analysis, drew from student interview data and student-composed IEP student narratives. Parent, teacher, and administrator interviews provided the data sources within the parent, teacher, and administrator domains (respectively).

Descriptive and concept coding of the data was utilized to create a broad inventory of all elements of DYA that were mentioned by students, their parents, teachers, and/or administrators. Several iterations of code mapping the data provided a means from which to organize and categorize the cited elements into central themes. To investigate how the school was conceptualized by each domain, an in-depth analysis of these themes was conducted separately by domain. Specifically, elements were considered to contribute more strongly to a domain’s conceptualization of the school if they were mentioned by many of the individuals comprising that domain, suggesting higher levels of energy. These collectively mentioned elements form the basis of our descriptions of DYA for each individual domain. Here, we present findings from the student domain.

3. Findings

Students at DYA collectively mention elements that span across four broader themes: Content and Interactions with Content, Individualized Student Support, Formal Groupings and Organized Activities, and Culture and Underlying Environment. Within each of these themes, the differing degrees of collective mention associated with each element allow us to view the school and the experience it offers through the elements of DYA to which the students draw the most attention. In an effort to form a useful and consolidated understanding of the school experience, elements with high degrees of collective mention (at least five of six students) are selected to form the student description.

Holistically, the data from these themes paint a detailed picture of the experience offered by DYA through the voices of the student domain. Their voices describe an experience in which students engage in active learning, often through activities which do not have a product-based end goal. Technology is integrated throughout their learning activities. Students have freedom in terms of the content they access and the ways in which they interact with it. There is frequent, individualized direct contact with teachers and specialists. This relationship between students and their teachers and specialists is notably present in their non-core and elective classes specifically.

While these features of the school could potentially be observed and described by those outside of the school, these external parties could not predict that these features are at the forefront of the students’ understanding of their experience. In particular, the theme of Culture and Underlying Environment offers a perspective which could not be independently described by external groups. Students collectively mention elements of the school culture of DYA; in fact, all students in the study discuss their perceptions of the school as a community. In particular, the majority of students describe the positive culture developed by the teachers and staff at the school. This underlying environment is explicitly noticed by the students,
and is a unique part of describing DYA and the experience that it provides to them.

4. Discussion

In this paper, we chose to focus on the high-energy, collectively mentioned elements within the student domain to explore the conceptualizations of the school by internal groups. The collective mention of elements among the student, parent, teacher, and administrator domains contribute to our understanding of the school as it is conceptualized by distinct groups operating within it. This qualitative data provides unique insight into the internal functioning of a school, honouring the school’s complexity and the voices of those within it.

By investigating elements with high levels of collective mention among students, a consolidated description of the school was formed from the student perspective. Newly introduced reform efforts in a school may experience more success if, in their development and implementation, the consolidated student perspective from their school is considered. Imagine, for instance, that a school decides to implement a new block of time dedicated to intervention support for students with poor performance in reading. With the student-painted picture provided above, implementation choices can be made to better reflect the students’ conceptualization of their school experiences. The importance with which students regard their relationships with their teachers, for instance, may lead to an implementation method which groups students with teachers with which they have an established relationship. The student focus on non-product based activities within active learning styles may lead to an evaluation method which integrates data collection into daily, formative activities. These choices are uniquely responsive to the specific students within the school, allowing the newly introduced intervention to blend smoothly into the student conceptualization of the school experience and to tap into the high-energy elements which already exist.

5. Implications

This analysis provides an approach with which to investigate and describe a school, using the collective mention of elements within different domains to describe the school holistically. Internal accountability systems in schools which are aiming to improve their practices should integrate the voices of the groups within their school, using the process documented here to organize and consolidate descriptions of the school from each group’s perspective. These descriptions can be applied at multiple levels, as the insights could impact practice at a school-wide level or on an individual level. We anticipate that each level may need to tailor the process of analyzing collective mention, as may each individual school. With more research, these individual needs can be apprehended more specifically.

While the student domain is presented here as an illustration of the ways in which individual student voices can be integrated into an analysis of the school, this is only done so in a broad, preliminary sense. The domain’s individualized nature and position of centrality within the school experience naturally creates a need for detail. A continued in-depth investigation that takes these contextual findings and examines the ways in which they interact with students is warranted before such an analysis could take place in a meaningful way.

6. Limitations

As participants were chosen by the school, accommodating for particular researcher requests, the sample is not representative of the whole school. For instance, study participants shared stronger communication and social-emotional characteristics than many other students in the school. As a result, assertions made in this study are not suitable for generalization to DYA’s entire student body. However, the promising results of the implementation of our method indicates that with different sampling processes, the approach could be quite informative for an entire school. Lastly, while our method enables us to infer how different domains within the school are conceptualizing the school, this type of analysis does not allow for causal conclusions or judgments of quality.

7. Conclusion

Our study aimed to form a school description from the perspective of four different domains within the school – student, parent, teacher, and administrator. Utilizing collective mention of school elements, this paper described the formation of a description of DYA as conceptualized by its students. Tapping into the experience of students, particularly those with special needs, is an innovative way to describe a school and the experience that it offers. These internal
conceptualizations can and should play a vital role in strengthening our accountability systems, bolstering school improvement efforts, and empowering those who experience our schools each and every day. This process can add to the description of a school generated by external accountability measures, providing a more holistic understanding of an incredibly complex institution.

8. References


Definition of Masculinity and Social Considerations for Schools

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Abstract

What it means to be masculine can be defined in different ways, though there tends to be popular definitions associated with dominance, aggression, and control. Such popular definitions create problems, particularly when it comes to the social spaces within a school. This paper will explore such issues and discuss the problems inherent in popular definitions and understanding of masculinity.

1. Introduction

In this paper we would like to discuss masculinity in the context of societal expectations and try to show the effects of some social variables (e.g., family, media, religion, etc.) on such definitions. We will then look at some ways in which masculinity can better be understood within the context of the school environment so as to promote social justice.

2. Literature review

What is masculinity? Any discussion on being “masculine” requires an initial discussion on gender. Gender identity refers to one’s identification as male, female, or transgender. Many things contribute to the formation of gender identity. Some of these include the environment the individual is raised in (e.g., society, family), and biological factors that are in place before birth [4]. Biological factors that may influence gender identity include pre- and post-natal hormone levels and gene regulation [4]. Social factors include gender messages conveyed by family, mass media, economy, religion, and education [4]. Gender expression refers to the physical manifestation of one’s gender identity. This is usually expressed through clothing, mannerisms, and chosen names [22]. In some cases one’s gender identity may be inconsistent with their biological sex characteristics, resulting in behaving in a way that is not consistent with cultural gender norms. These gender expressions may be described as gender variant or transgender. Transgender people usually have a gender expression that matches their gender identity rather than their biological sex [22]. However, gender identity is part of a continuous spectrum with man at one end, woman at the other end, and anything between is an androgyne [4, 22].

Men and ideas of masculinity are also going through many changes. Men are increasingly required to adjust to the rise of male unemployment and the feminist challenge to patriarchal ideology [21]. For example, the increasing objectification of men’s bodies is associated with the emergence of a new consumer culture. With the growth of men’s style magazines and male modeling, men are being subjected to ‘the look’ of both women and men. This is exemplified by the range of new body-sculpting magazines and exercise machines being promoted. It portrays men as a growing social problem because an increasing number of them are uneducated, unemployed, unmarried, or gay all of which are “problems” for masculinity [21]. The view is that school, work, and family are key socializing institutions without which men become unproductive, uncontrollable, and dangerous. For example, the bad behavior of men is seen as responsible for the decline of family values, the growth of single-headed households, and the proliferation of homosexuality [21]. The ideology of masculinism is able to exploit male insecurities and vulnerabilities about sexuality and work, often merely to sell products. It is also used as a basis to perpetuate sexism, thereby reinforcing traditional occupational and reward hierarchies. The myth of male privilege, power, and status blinds men to their own gender oppression and therefore limits the possibilities for an emancipatory transition from within the boundaries of masculinism [21]. The prospects for a balanced future in gender relations then are dependent on the continued unmasking of the core ideas that inform masculinism [21].

In the past, many feminists had problems with masculinity in at least two ways. First, masculinity was associated with the institutional practices, attitudes, and personality of men with the practices, attitudes, and personality that promote male dominance and oppress women such as competitiveness, aggression, and control [9]. Thus,
masculinity was seen as a social problem inherently opposed to feminist goals. Second, the concept of masculinity was nebulous and inconsistent [9].

However, if masculinity is not the social, cultural, and political expression of maleness, then what is it? Connell writes that, assuming it is even possible to define masculinity, a good definition would be “simultaneously a place in gender relation, the practices through which men and women engage that place in gender, and the effects of these practices in bodily experience, personality and culture” [5, p. 71]. Ultimately, it seems that the definition of masculinity has arisen because of the interrelations between gender research and socio / economic pressures to see masculinity in a certain light.

Social variables such as religion, media, family and culture fundamentally affect the development of ideas about masculinity. Furthermore, Freud’s commentary on the unconscious – as the part of the mind which gives rise to a collection of mental phenomena that manifest but which the person is not aware of at the time of their occurrence [7] – include phenomenon such as unconscious feelings, automatic skills, unnoticed perceptions, unconscious thoughts, unconscious habits and automatic reactions, complexes, hidden phobias and concealed desires all of which can be connected to or reinforce a particular conceptualization of masculinity. A necessary rethinking of masculinity starts acknowledging that the physical sense of maleness and femaleness is linked to the cultural interpretation of gender [5].

The masculine gender is “among other things a certain feel to the skin, certain muscular shapes and tensions, certain possibilities in sex” [5, pgs. 52-53].

There is growing awareness that masculinity is subject to historical, social, and ethnic variations which also enable understanding the oppression of male minorities who do not conform to the current hegemonic definition [24]. Masculinity is not simply about men; definitions of manhood actually provide a standard or norm for men to aspire to rather than describe the status quo of maleness [24]. This distinction is important, given that masculinity is almost always considered directly tied to the physical form of a man’s body [5]. Masculine ideology can also arise through gender role socialization, whereby young children internalize cultural norms and expectations about male-appropriate behavior from families, peer groups, and society. Such internalized role norms serve as a means by which men organize and process information about themselves and the external world [13].

The interplay of gender with other structures (e.g., class and race) creates further relationships between definitions of masculinity. Marginalization is always relative to the authorization of the hegemonic masculinity of the dominant group [5]. The challenge to hegemonic definitions of masculinity came from men whose masculinity was cast as deviant: men of color, gay men, and ethnic men. Masculinity therefore cannot be understood as a singular term, but must be examined as masculinities in the plural – the ways in which different men construct different versions of masculinities [18].

It is important to stress that not all models of masculinity are equal, and it crucial to pay careful attention to the function of other factors (e.g., homophobia, sexism) in creating new masculinities. As gender-queer forms continue to emerge, conceptualizations of gay, lesbian, transsexual and, as a result, masculinity and femininity will evolve and produce new conceptual understandings [10]. As a comparative term, masculinity is the opposite of femininity. In its modern convention, the term assumes that one’s behavior results from the type of person one is (see, e.g., Table 1).

Table 1. Typical characterization of masculinity [4].

<table>
<thead>
<tr>
<th>Issue</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodily strength &amp; speed</td>
<td>Men are stronger and faster</td>
</tr>
<tr>
<td>Physical skill</td>
<td>Women are good at fiddly work</td>
</tr>
<tr>
<td>Sexual desire</td>
<td>Men have mechanical skills</td>
</tr>
<tr>
<td>Recreational interest</td>
<td>Women love sport</td>
</tr>
<tr>
<td>Character</td>
<td>Women love gossip</td>
</tr>
<tr>
<td>Intellect</td>
<td>Men are rational</td>
</tr>
<tr>
<td></td>
<td>Women are nurturer</td>
</tr>
</tbody>
</table>

Human beings are incapable of studying human processes without implicating themselves, and the same is true for masculinity researchers [5]. As we explore masculinities, it is important to choose relevant and fruitful areas to study, make appropriate assumptions, and choose language to accurately and adequately describe our knowledge [16].

In the early twenty first century, masculinity in the United States was constructed differently by class culture, race and ethnicity, and age [17]. Since each of these axes of masculinity affected each other, the resulting matrix of masculinities is complicated by cultural issues [17]. Furthermore, if gender varies across cultures, time, and individuals then we really cannot speak of masculinity as a constant, universal essence that is common to all men but rather as an “ever-changing fluid assemblage of meanings and behaviors” [17, p. 124].

Despite such fluidity in meaning, it is still important to consider the practical situation of men in the world. For instance: the Columbine high school massacre was committed by men; the murder in 1996 in Queensland Australia was committed by a man; in 1997, the economic activity rate for women is just over two-thirds the rate of men and in Arabic countries it is one-fifth; the world-wide average for women’s average income is 56 percent of men’s
average income; and roughly 93 percent of ministers in the world governments are men [4].

2.1. Role of family and culture

The role of “family provider” when seen “as an element of hegemonic masculinity is the material basis of men’s authority accepted indicator of their manliness” [15, p. 86]. This is particularly prominent in urban middle class families where the husband is provider and is thus usually not an active presence during the family’s waking hours as employment requires total dedication to the company [15]. This concept encourages men to consider their financial contribution as their single most important family responsibility, since failure to provide means a loss of respect and authority in the family and, consequently, a loss of masculinity. Coontz [6] notes that changing demographics and shifting social norms necessitate people to behave in alternative and non-conventional enactments of gender, work, and family if they are to survive the modern-day social and economic pressures of life.

These expectations originate largely from the 1950s family model of “father as breadwinner” and mother as “stay-at-home nurturer of the children”. These were the norms by which such families, and the fathers within them, were judged. Yet, by looking at the reality of work and life arrangements of today, instead of on traditional gendered expectations, the statistics show that roughly two million fathers in the United States stay home to take care of their children while the mother is the one working [8, 13].

2.2. Role of media in shaping masculinity

Racialized notions of masculinity are acted out by/through sexualized tropes: “the ‘gangsta’ symbols, ‘do-rags’, baggy pants, shirts bearing sports team insignias, and limping walks are designed to invoke a hardened inner-city gangsta style, one portrayed on television and in movies, as a specifically black cultural style” [23, p. 3-4]. Mainstream media representations also play a role in reinforcing ideas about what it means to be a “real” man in our society. In most media portrayals, male characters are rewarded for self-control and the control of others, aggression and violence, financial independence, and physical desirability [23]. Children Now, a California-based organization that examines the impact of media on children and youth, released a report arguing that the media’s portrayal of men tends to reinforce men’s social dominance: “the majority of male characters in media are heterosexual, male characters are more often associated with the public sphere of work, rather than the private sphere of the home, and issues and problems related to work are more significant than personal issues and that non-white male characters are more likely to experience personal problems and are more likely to use physical aggression or violence to solve those problems” [3, p. 1]. The portrayal and acceptance of men by the media as socially powerful and physically violent serve to reinforce assumptions about how men and boys should act in society and how they should treat women, children and each other [3].

The role of masculinity in families and family acceptance depends on media. A problematic stereotype regularly emerges in the media, in the form of commercials, television characters, and parenting magazines that continuously “infantilize men and perpetuate the same incompetence stereotype” [3, p. 2], with the mother exemplified as the primary caregiver. As such media perpetuates the stereotypes, more magazines advertisements are sold. More importantly, there is a greater influence on gender politics and subtly perpetuated traditional meanings of masculinity in society.

From a look at the literature on masculinities thus far, it is evident that definitions of masculinity have mostly taken our cultural standpoint for granted but have adopted different patterns and ways to describe and ascribe the masculine concept to a person. Janicki outlines four of these ways which lend from: essentialist, positivist, normative, and semiotic [14].

Essentialism explains that for any specific kind of entity, there is a set of characteristics or properties all of which any entity of that kind must possess. This makes it easy to accurately define concepts and, thus, words or even expressions should have a single definition and meaning, such as the essentialist statement “all human beings are mortal”. Such definitions “usually pick a feature that defines the core of the masculine, and hang an account of men’s lives on that.” [5, p. 68] The essential approach is weak: “the choice of the essence is quite arbitrary. Nothing obliges different essentialists to agree and in fact they often do not. Claims about a universal basis of masculinity tell us more about the ethos of the claimant than about anything else.” [5, p. 69]

Positivism, as a second conceptualization of masculinity, outlines a set of epistemological perspectives and philosophies of science which states that scientific approaches best uncover processes by which both physical and human events occur [19]. Positivist social science stresses the finding of the facts and yields a simplistic definition of masculinity [5]. This definition states what men actually are and is the logical basis of masculinity/femininity (M/F) scales in psychology.

The third approach, normative, create definitions that acknowledge differences identified through a positivist approach and propose a standard view; that of masculinity as what men ought to be [5]. This definition is often found in media studies, such as in discussions of “exemplars such as John Wayne or of genres such as the thriller” [5, p. 70]. Although
normative definitions allow different approaches to the standards to different degrees, this soon produces paradoxes “few men actually match the ‘blueprint’ or display the toughness and independence acted by Wayne, Bogart or Eastwood.” [25, p. 32-33]

The semiotic approach argues against the personality perspective and instead suggests defining masculinity “through a system of symbolic differences in which masculine and feminine places are contrasted” [5, p. 70]. Masculinity, in this sense, is not and should not be defined as not-femininity: “in the semiotic opposition of masculinity and femininity, masculinity is the unmarked term, the place of symbolic authority. The phallus is master-signifier and femininity is symbolically defined by lack. This definition of masculinity has been very effective in cultural analysis. It escapes the arbitrariness of essentialism and paradoxes of essentialism and paradoxes of positivist and normative definitions.” [25, p. 33].

3. Masculinity and schools

There exists hierarchies of masculinities in every setting including school institutions, and each setting will invariably perpetuate its own dominant (hegemonic) masculinity discourse which features prominently over all other forms of masculinity; it becomes “culturally exalted” and personifies what it means to be a “real” boy [5]. So what roles do teachers play in this? Do they reify or disrupt such hegemonic positions of masculinity? How do their actions/inactions affect students, especially boys? The following paragraphs attempt to discuss these issues.

Hidaka [11] found in his study of masculinity discourse in schools that male teachers are often seen by boys as strict disciplinarians who were aloof from students, although some are construed as play-mates who would join the boys in playing ‘men’s’ sports during recess. Female teachers are more comfortable in associating with the image of the mother. This did not go unnoticed by students who disclosed that teachers treated boys and girls differently and the treatment changed as they graduated to higher grades. For instance, most of his study participants claimed that teachers, especially male teachers, had a soft spot for girls in relation to corporal punishment and this carried over to other aspects of teacher-student interactions: “participants remembered the pet phrases spoken by their teachers, including “be gentle to girls”, “be kind to girls” and “men should protect women”, reflecting the pampering of girls at school. This, however, also implied the exclusion of girls from the future job market and from adult responsibilities and tasks.” [14, p. 57]

In the study conducted by Martino and Pallotta-Chiarolli [20], they found that students from small rural towns (which often lack diversity) feel culturally ignored and isolated and need support. In this sense, the racist practices often engaged in by white boys are understood as another means by which they are able to assert their position of power at the top of a social hierarchy of masculinities in the schooling context. However, some of the boys actively challenged the racist practices of others:

Racism is a problem….. like white boys and how they talk about Indigenous boys, “I do not really like them dark boys because they start too much trouble.” But it’s not really us, we just get aggravated real easy. They say, ‘Oh I do not really like dark people’. It’s just little things that I hear when I’m walking past. I do not mean to hear it but, if I hear that type of stuff, I chuck my ear in a bit. I think it is because of their culture and the way they are taught at home….. for Indigenous people respect is the biggest thing you could ever have. [20, p. 142]

In a study on Barbados male youths, Downes [1] found in that the construction of hegemonic masculinity was formulated by the “co-optation of the ‘lesser’ masculinity of a black middle class by the socially dominant white males” [p. 130]. This process was facilitated primarily through the school system. The education system of Barbados: “perpetuated the myth that Mitchinson reforms had created a meritocratic instrument for social justice, mobility and culture ‘refinement’ like their white, public school-educated counterparts in England, so these black ‘boys of the empire’ associated socioeconomic and political dominance—whether in the local or wider imperial contexts— with masculinity itself. Consequently, a share in the fruits of hegemonic masculinity necessitated political enfranchisement, and social and economic justice. Nevertheless, the aggressive masculinity exercised by old boys of the elite schools of Barbados in protecting imperial and colonial interests did nothing to redress the social, political and economic inequities which faced black in the empire” [1, p. 130].

4. The other international revolution

The Industrial Revolution was a period from the 18th to the 19th century, started in England around 1733 with the first cotton mill [12]. The Industrial Revolution was the underlying reason for changes in agriculture, manufacturing, mining, transport, and technology. It also had a profound effect on the socioeconomic, cultural conditions starting in the United Kingdom and subsequently spreading throughout Europe, North America, and eventually the entire world. The Industrial Revolution marks a major turning point in human history; almost every aspect of daily life was eventually influenced in some way. Most notably, average income and population began to exhibit unprecedented sustained growth. In the two centuries following 1800, the
traditional forms of manhood and fatherhood. Masculinity [2] is therefore very firmly connected to the ability to pass on masculine values to the son, since production systems have also destroyed the more traditional relationships between boys and their fathers [2]. Prior to the Industrial Revolution, fathers and sons shared close cohabitations and fathers passed on trade skills to their sons. Modern production systems have also destroyed the father’s ability to pass on masculine values to the son, since the modern father does not work with his sons and, by the time he gets home from work, sees his sons for a few minutes each day [2]. The notion of a ‘deep masculinity’ [2] is therefore very firmly connected to traditional forms of manhood and fatherhood.

5. Conclusion

We now offer some conclusions in keeping with the points raised in this assignment. Some common conceptions of masculinity were presented. For instance, the man is the financial provider; but this means if his wife earns more than him then he has somehow failed in the performance of masculinity. Therefore, a high-earning female (or any female who desires a career) is “emasculating.” A second example was that men are interested in sex at all times, and spend their time thinking about sex; regardless of whether this is true, it affects how men perceive themselves and their relationship to women. A third example is that a man is in control of his own life. In my experience this is rarely true of anyone – even leaving all of society behind to live like a hermit only gives some form of control, as there will still be many things beyond your control. The idea that men must be in control encourages men to try to control others in their lives. Fourth, violence is the natural male response to a perceived threat. Again, if this is how a man thinks he should respond then is it any wonder that a man, when faced with a situation where a woman has more control than him, seeks to abuse the woman? And lastly, men are incompetent at housework and should not enjoy it or do it willingly. This suggests to a man that, if he is doing housework or childcare or something, it has to be because a woman pressured him into it, which then causes his opinion of the woman to be “a nagging bitch.” All such conceptualizations lead to serious problems in society, which have been well documented throughout the news.

Furthermore, the media plays a fundamental role in defining masculinity for young people and in propagating such images. In popular media, the more common expressions of masculinity include:

- The majority of male characters in media are heterosexual
- Males are more often associated with the public sphere of work, rather than the private sphere of the home, and issues and problems related to work are more significant than personal issues
- Non-white male characters are more likely to experience personal problems and are more likely to use physical aggression or violence to solve those problems

One final point remains: what is it that teachers are doing about these definitions of masculinity? Are teachers merely propagating the same definitions as the media, whether intentionally or not? Are they getting students to critique, discuss, and think about these definitions? Or are they encouraging their own definition of what it means to be masculine? Teachers need to be aware of these issues so that they are not unconsciously propagating undesirable definitions of masculinity.

6. References


Session 12:  Early Childhood Education

Title: Leisure Reading Habits and Preferences of Young Children in Singapore  
(Author: Shaheen Majid)

Title: A Montessori Method Adaptation for Mayan Children Living under Unequal Social Relationships  
(Authors: Mayra Pech-Rivera, Juan Carlos Mijangos-Noh)

Title: The Experiences and Perceived Differences in Working Conditions among Early Childhood Educators Who Have Worked in both For-Profit and Non-Profit Childcare Centres in the Greater Toronto Area  
(Author: Christine Romain-Tappin, Rachel Langford)

Title: Effects of Equal Spacing, Expanding Spacing, and Massed Condition on EFL Learners’ Receptive and Productive Vocabulary Retrieval  
(Authors: Roya Khoii, Kobra Fallah Abed)
Leisure Reading Habits and Preferences of Young Children in Singapore

Shaheen Majid
Nanyang Technological University, Singapore

Abstract

Leisure reading is important for personality development and mental growth of children. The main purpose of this study was to investigate leisure reading habits and preferences of young children. A questionnaire was used for data collection and 254 children participated in this study. It was found that the top five leisure-time activities of the children were playing, reading books/comics, watching television, spending time on hobbies, and playing computer games. Mostly mothers, followed by fathers, were encouraging children to read books. The major reasons for leisure reading were to learn new things, improve language skills, and to get better grades in tests and examinations. The majority of the children preferred reading print books and the most popular genres were adventure, mysteries, humor, and animal stories. This paper suggests certain measures to help promote reading among children.

1. Introduction

Love for reading, developed at an early age, can help children appreciate the value of leisure reading and benefits associated with it. Leisure reading allows children to relax, enjoy, and spend their time more meaningfully. Adequate initial support from parents, teachers, and siblings is necessary for children to become passionate readers. It is particularly important these days as young children are exposed to various gadgets which may distract their attention and reading focus. The purpose of this study was to investigate leisure reading habits and preferences of young children. It is expected that findings of this study will help parents and teachers understand the reading behavior of young children and how to motivate them to sustain their reading habits during adolescence and many more years to come. Similarly, publishers of children literature can also learn about the reading interests of children, which can help them review their publishing strategies.

2. Literature Review

Books play an important role in personality development and cognitive growth of children. Reading stimulates their thinking and reasoning skills which can make them good learners. Leisure reading can also expose children to different cultures and their unique characteristics and traditions, thus developing tolerance, respect, and a positive attitude towards other people and cultures [1].

Sustained reading can also help children to perform better academically by improving their comprehension, vocabulary, grammar, and reading fluency [2]. Mansor et al. [3] claim that reading avidness is one of the predictors of academic achievements. An international study conducted in 35 countries showed that children involved in leisure reading were more likely to obtain higher literacy scores [4]. These findings were endorsed by another international study in 13 countries which concluded that enjoyment of reading is a predictor of better reading proficiency [2].

It would also be interesting to know what children in different parts of the world prefer to read. Studies suggest that children like reading books on diverse topics and their reading interest are changing [1], [5]. A study on the reading behavior of children in North Carolina showed that girls preferred reading books about arts & craft, health, and fashion & beauty, whereas boys liked reading books about sports, transportation, and military topics [6]. A similar survey in Singapore revealed that the top three genres for both girls and boys were adventure, mysteries, and comedy, with some variations in their level of preference [7]. A study of 8,152 students in the UK revealed that adventure, humor, and horror were the most preferred genres [8].

Despite many benefits associated with leisure reading, several studies suggest a decline in reading by children. The major reason given for this decline is easy access to a wide array of electronic gadgets using innovative designs, attractive colors, fascinating animations, and other attention grabbing applications. Ots [9] investigated the reading habits of students in Estonia and found that they were more interested in the Web surfing and computer games than in reading books. Another study involving 2,200 students, aged between 7 to 16 years, revealed a considerable decline in book reading with increasing age [10].

As now many sophisticated gadgets and applications are developed at a much faster pace, it will be interesting to explore if young children are
still taking interest in reading and spending enough time on this activity. The main purpose of this study was to investigate leisure reading habits and preferences of young children in Singapore. Some areas covered by this study were: favourite leisure time activities of children, frequency and time spent on reading, reasons for undertaking leisure reading, preferred formats and genres, and the factors considered while selecting books.

3. Research Method

A paper-based questionnaire was used to collect data from children aged between 6 to 12 years. The first section of the questionnaire collected demographic information of the participants. The next section was on reading attitudes and motivations for leisure reading. It was followed by questions pertaining to preferred genres. The last section solicited responses related to factors considered by the children for selecting their books. Keeping in view young age of the children, the questionnaire was kept brief and a simple language was used.

The convenience sampling technique was used to collect data at Kumon Learning Centres in Singapore. After seeking permission from the teachers, the questionnaire were distributed in their respective classes. The students were told to only provide their responses pertaining to leisure reading. After reading and explaining each question, the students were given time to record their responses. A total of 268 questionnaires were returned and out of these 254 were useable.

4. Results and discussion

The following sections present findings of this study.

4.1. Demographics

Almost equal number of male (50.8%) and female (49.2%) children participated in this survey. Some 11.8% of the students were six years old while the majority of the students (79.1%) were in the age group of 7-9 years. Only 9.1% of the students were in the age group of 10 to 12 years. The students were also asked about their ethnicity as it could influence their reading preferences. Out of the 254 students, 61.0% were Chinese, 28.0% Indian, 3.5% Malays, and the remaining 7.5% represented other races living in Singapore.

4.2. Favorite free time activities

The students were asked about their top three most favorite leisure-time activities. The purpose was to investigate if reading was among the most preferred free time activities. As shown in Table 1, the top three most popular leisure-time activities were playing games (59.9%), reading books/comics (50.8%), and watching television (43.7%).

<table>
<thead>
<tr>
<th>Favorite activity</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing (e.g. toys, sports, etc.)</td>
<td>151</td>
<td>59.9</td>
</tr>
<tr>
<td>Reading books/comics</td>
<td>128</td>
<td>50.8</td>
</tr>
<tr>
<td>Watching television</td>
<td>110</td>
<td>43.7</td>
</tr>
<tr>
<td>Hobbies (e.g. drawing, music, etc.)</td>
<td>101</td>
<td>39.8</td>
</tr>
<tr>
<td>Computer games</td>
<td>100</td>
<td>39.5</td>
</tr>
<tr>
<td>Going out (e.g. shopping, movies, food, etc.)</td>
<td>65</td>
<td>25.6</td>
</tr>
<tr>
<td>Listening music</td>
<td>55</td>
<td>21.7</td>
</tr>
<tr>
<td>Sleeping</td>
<td>50</td>
<td>19.7</td>
</tr>
</tbody>
</table>

It was a matter of satisfaction that young children were able to appreciate the value of reading and this activity was ranked second among the listed leisure-time activities. It was interesting to note that computer games were not ranked very high. This finding is different from Ots [9] who reported young children’s preference for computer games.

4.3. Frequency of leisure reading

The participating children were asked how often they read leisure books (not study-related books). The majority of the students (52.57%) were ‘sometimes’ doing leisure reading (Figure 1). Another 42.30% of the students were ‘often’ reading books. Only a small percentage (5.14%) of the students said that they never read a leisure book during their free time. It appeared that the majority of the surveyed children were involved in leisure reading.

![Figure 1. Frequency of leisure reading](image)

The children were also asked about the average amount of time spent weekly on reading. It was found that 33.9% of the students were spending less than 30 minutes per week on reading books (Table 2). Another 33.4% were spending 30 to 60 minutes, while only 10.3% of
the children reported reading for more than three hours per week.

Table 2. Weekly time spent on reading

<table>
<thead>
<tr>
<th>Time</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 30 minutes</td>
<td>85</td>
<td>33.9</td>
</tr>
<tr>
<td>30-60 minutes</td>
<td>84</td>
<td>33.4</td>
</tr>
<tr>
<td>1-1.5 hrs</td>
<td>28</td>
<td>11.2</td>
</tr>
<tr>
<td>1.5-2.0 hrs</td>
<td>12</td>
<td>4.8</td>
</tr>
<tr>
<td>2.0-2.5 hrs</td>
<td>7</td>
<td>2.8</td>
</tr>
<tr>
<td>2.5-3.0 hrs</td>
<td>9</td>
<td>3.6</td>
</tr>
<tr>
<td>More than 3 hrs</td>
<td>26</td>
<td>10.3</td>
</tr>
<tr>
<td>Total</td>
<td>251</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.4. Attitude towards reading

The participating children were asked how much they like reading books. A big majority (70.47%) of the students said they enjoy reading books a lot (Figure 2). This finding supports a previous finding of this study (section 4.2) where reading was ranked second in the list. Another 27.16% of the students enjoyed reading books ‘a little’. Only 2.36% of the participating students did not like reading books. It appeared that, on the whole, a considerable majority of the students liked leisure reading.

Figure 2. Attitude towards leisure reading

A correlation analysis showed that children attitude towards reading books was positively correlated to their reading frequency (r=0.62, p<0.01). This means children with a positive attitude towards reading were actually spending more time on leisure reading.

4.5. Books read to children

The children were asked if anyone in the family has read a book to them during the last three months. The purpose was to investigate who in the family was indirectly motivating children to read books. The highest number of children (47.6%) said that, during the last three months, their mothers had at least read one book to them (Table 3). This figure was 30.3% for fathers.

However, 24.4% of the children revealed that no one has read a book to them during the last three months.

Table 3. Book reading by relations (Multiple response)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>121</td>
<td>47.6</td>
</tr>
<tr>
<td>Father</td>
<td>77</td>
<td>30.3</td>
</tr>
<tr>
<td>Siblings</td>
<td>31</td>
<td>12.2</td>
</tr>
<tr>
<td>Grandparents</td>
<td>37</td>
<td>14.6</td>
</tr>
<tr>
<td>Domestic helper</td>
<td>25</td>
<td>9.8</td>
</tr>
<tr>
<td>No one</td>
<td>62</td>
<td>24.4</td>
</tr>
</tbody>
</table>

On the whole, it appeared that basically parents, though mothers considerably more frequently, were promoting leisure reading by reading books to their children. Mansor et al. [3] also reported that reading ability of children is greatly influenced by their parents. Johnson [11] found that, in addition to parents, teachers, cousins, and friends can also influence the reading choices of children. Grant [5] also reported a significant relationship between parents’ knowledge of children literature and children’s reading scores.

4.6. Reasons for leisure reading

Through a multiple response question, the children were asked about their reasons for reading books. Table 4 shows that the major reasons for leisure reading were: ‘to learn more things’ (58.7%), ‘to improve language skills’ (49.2%), ‘to get better grades in tests and exams’ (41.9%), and ‘my parents asked me to read’ (38.2%). It was worth noting that among the top four reasons, two were studies-related reasons. Some previous studies also suggest that children in Singapore and in some other countries were reading books to actually improve their academic performance [1], [7], [12].

On the other hand, the major reasons for doing less leisure reading were: ‘too much homework’ (37.9%), ‘I prefer other leisure activities’ (24.4%), ‘reading is too boring’ (22.4%), and ‘cannot find books of my interest’ (20.1%).

4.7. Favorite Genres

The children were asked about their favorite genres and for this purpose a list of 16 popular genres was provided in the questionnaire. As shown in Table 5, the top six genres liked by more than one-half of the children were adventure (74.2%), mysteries & detective stories (61.8%), humor & jokes (57.1%), science (54.1%), animals (50.2%), and sports (50.2%). Several previous studies have also reported children preference for
these genres [5], [7], [8]. On the contrary, the genres did not like by the children were religion

Table 4. Purpose of undertaking leisure reading

<table>
<thead>
<tr>
<th>Rank</th>
<th>Reason for reading</th>
<th>N</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To learn more things</td>
<td>252</td>
<td>148</td>
<td>58.7</td>
</tr>
<tr>
<td>2</td>
<td>To improve my language skills</td>
<td>252</td>
<td>124</td>
<td>49.2</td>
</tr>
<tr>
<td>3</td>
<td>To get better grades in my tests and exams</td>
<td>253</td>
<td>106</td>
<td>41.9</td>
</tr>
<tr>
<td>4</td>
<td>My parents ask me to read</td>
<td>254</td>
<td>97</td>
<td>38.2</td>
</tr>
<tr>
<td>5</td>
<td>My school library has a lot interesting books</td>
<td>253</td>
<td>87</td>
<td>34.4</td>
</tr>
<tr>
<td>6</td>
<td>My teachers ask me to read</td>
<td>254</td>
<td>76</td>
<td>29.9</td>
</tr>
<tr>
<td>7</td>
<td>To relax</td>
<td>253</td>
<td>72</td>
<td>28.5</td>
</tr>
<tr>
<td>8</td>
<td>Reading is my hobby</td>
<td>253</td>
<td>69</td>
<td>27.3</td>
</tr>
<tr>
<td>9</td>
<td>I have nothing else to do</td>
<td>254</td>
<td>67</td>
<td>26.4</td>
</tr>
<tr>
<td>10</td>
<td>My best friend loves reading, therefore, I also read</td>
<td>254</td>
<td>43</td>
<td>16.9</td>
</tr>
<tr>
<td>11</td>
<td>My parents often read at home and I also want to be like them</td>
<td>254</td>
<td>37</td>
<td>14.6</td>
</tr>
<tr>
<td>12</td>
<td>My parents give me a small gift after reading a book</td>
<td>254</td>
<td>37</td>
<td>14.6</td>
</tr>
<tr>
<td>13</td>
<td>My friend asks me to read with her/him</td>
<td>254</td>
<td>27</td>
<td>10.6</td>
</tr>
</tbody>
</table>

Chi-square tests were performed to investigate if any significant differences exist between male and female students. It was found that more female than male students liked reading books about arts & crafts, music, people & cultures, food & cooking, and languages. On the contrary, more male students preferred reading books about UFOs & aliens, and horror stories.

4.8. Preferred format for leisure reading

The participating children were asked about the factors considered by them while selecting books to read. As presented in Table 6, the top four factors were: ‘interesting topic’ (59.1%), ‘interesting book title’ (41.9%), ‘easy to read’ (33.5%), and ‘colourful pictures’ (32.0%).

Table 5. Genres liked by children

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Topics</th>
<th>N</th>
<th>I really like</th>
<th>I like a little</th>
<th>I don’t like</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adventures</td>
<td>236</td>
<td>74.2%</td>
<td>17.8%</td>
<td>8.0%</td>
</tr>
<tr>
<td>2</td>
<td>Mysteries/detective</td>
<td>225</td>
<td>61.8%</td>
<td>18.7%</td>
<td>19.5%</td>
</tr>
<tr>
<td>3</td>
<td>Humor/jokes</td>
<td>226</td>
<td>57.1%</td>
<td>24.3%</td>
<td>18.6%</td>
</tr>
<tr>
<td>4</td>
<td>Science</td>
<td>231</td>
<td>54.1%</td>
<td>22.5%</td>
<td>23.4%</td>
</tr>
<tr>
<td>5</td>
<td>Animal</td>
<td>239</td>
<td>50.2%</td>
<td>31.8%</td>
<td>18.0%</td>
</tr>
<tr>
<td>6</td>
<td>Sports</td>
<td>229</td>
<td>50.2%</td>
<td>30.6%</td>
<td>19.2%</td>
</tr>
<tr>
<td>7</td>
<td>Arts and crafts</td>
<td>229</td>
<td>43.7%</td>
<td>31.0%</td>
<td>25.3%</td>
</tr>
<tr>
<td>8</td>
<td>Music</td>
<td>224</td>
<td>43.8%</td>
<td>33.0%</td>
<td>23.2%</td>
</tr>
<tr>
<td>9</td>
<td>History</td>
<td>228</td>
<td>41.7%</td>
<td>24.6%</td>
<td>33.7%</td>
</tr>
<tr>
<td>10</td>
<td>Horror stories</td>
<td>226</td>
<td>36.7%</td>
<td>24.3%</td>
<td>39.0%</td>
</tr>
<tr>
<td>11</td>
<td>UFO’s and aliens</td>
<td>225</td>
<td>36.4%</td>
<td>20.9%</td>
<td>42.7%</td>
</tr>
<tr>
<td>12</td>
<td>Fashion/Beauty</td>
<td>224</td>
<td>34.4%</td>
<td>33.5%</td>
<td>32.1%</td>
</tr>
<tr>
<td>13</td>
<td>Languages</td>
<td>224</td>
<td>34.4%</td>
<td>33.5%</td>
<td>32.1%</td>
</tr>
<tr>
<td>14</td>
<td>Food and cooking</td>
<td>227</td>
<td>33.5%</td>
<td>26.9%</td>
<td>39.6%</td>
</tr>
<tr>
<td>15</td>
<td>People/culture</td>
<td>224</td>
<td>32.6%</td>
<td>36.6%</td>
<td>30.8%</td>
</tr>
<tr>
<td>16</td>
<td>Religion</td>
<td>219</td>
<td>27.9%</td>
<td>27.4%</td>
<td>44.7%</td>
</tr>
</tbody>
</table>
It was worth noting that basically the children were selecting book according to their interest and taste. Even colourful pictures and attractive cover designs were given comparatively less importance by the young children. It was also interesting to note that, although young children, they were hardly reading books based on recommendations from their parents, teachers, and friends. They were also not reading a particular book because it was either read by their friends or siblings. On the whole, it appeared that the children were independently selecting their books based on their own interest and choice.

4.10. Preferred language for leisure reading

Singapore is a multi-ethnic and multi-racial society, mainly comprising Chinese, Malays and Indians. Although there are four official languages, English is the lingua franca of the country. In addition to studying English as first language, students are also required to study their mother tongue languages as a second language. It was, therefore, logical to ask children about their favourite language for leisure reading. It was found that 70.5% of the children preferred reading books in English language while only 25.2% students liked reading in their mother tongue languages (Figure 3). One-quarter of the students did not like reading books in their mother tongue languages. A previous study in Singapore by Majid, Kai-Jie & Ying [1] also reported that 90% of the teenagers preferred reading books in English language.

5. Conclusion

It was encouraging to note that reading was the second most favourite leisure time activity of the young children. However, it was a matter of concern that a considerable number of them were doing leisure reading to improve their academic performance and not just for enjoyment and relaxation. It was also worth noting that a majority of the children were selecting their books based on book content and not on other trivial reasons. It was also interesting to note that the young children were quite independent in their book selection and were reading materials based on their own taste and interest. They were hardly following the reading patterns of their friends and siblings.
Though predominantly bilingual, the majority of the children preferred reading books in English language. Only a small percentage of them were reading in their mother tongue languages. There is a need to motivate children to also read in their mother tongue languages which will help them stay connected with their roots, culture and heritage.

In order to further promote leisure reading, parents, teachers and school librarians need to pay more attention to reading habits and preferences of children. This understanding will help them select appropriate materials for young readers. Once children will start enjoying reading books at an early age, they are likely to continue reading rest of their lives.

6. References


A Montessori Method Adaptation for Mayan Children Living under Unequal Social Relationships

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Universidad Autónoma de Yucatán, Mexico

Abstract

Children from Mayan communities in Yucatan live in a setting of social inequity and educational performance gap. These conditions prevent them from having access to educational opportunities in their early years. This research is proposed as a response for the educational needs of preschool Mayan children. It is currently taking place in Canicab, a Mayan rural town in Mexico.

Critical educational ethnography was chosen as the methodology to record the implementation process of a culture-adapted version of the Montessori Method. It is the first implementation of the Method with adaptations for a Mayan culture environment. The information gathered this way will allow the analysis of the implementation’s effects on Mayan children’s personal habits, learnings, and social relationships.

The results of this study will allow us to know which characteristics of the method itself, as well as its adaptations, actually enhance the children’s learning experiences. Furthermore, the ethnographic record of the implementation process will serve as an experience guide on how to potentially set conditions for implementations in other communities. Finally, the study’s findings will allow further research on this subject.

1. Introduction

This study takes place in a Mayan community named Canicab, located in the Municipality of Acanceh, 25 kilometers away from Merida, capital city of Yucatan, Mexico. According to data retrieved from the National Institute of Statistics, Geography and Informatics (INEGI, initials in Spanish) 2010 census [1], this town is inhabited by 758 people and has a medium standard of marginalization.

Canicab’s elementary school work as a multigrade system in which students are not receiving enough and efficient attention from their teachers, thus resulting in multiple cases of performance gap and high rates of students failing school levels or dropping-out. Furthermore, the curriculum, textbooks and didactic materials and resources used in these schools are not accurate to the cultural and linguistic environment of this Mayan descent community [2].

On the other hand, gender and domestic naturalized violence are embedded in both social and family relationships of Canicab’s inhabitants. This drives children to everyday violent behavior among them at school (bullying) and while playing with peers at home or in their neighborhood. Additionally, alcoholic substances and other drugs abuse by parents, relatives and other people in the community put children in a vulnerable situation as violence victims as well as setting them up for becoming addicts themselves in the future.

Located in the outskirts of Canicab, the Uj Ja’ Sijo’ob (“Born from Moon and Water” in Mayan language, read as ooh-haa-see-ho-ob) Community Center is currently managed by a group of university undergraduates and researchers from various disciplines: anthropology, education, psychology, sociology, and communication. It is in this place, built with local, low-cost and recycled resources, where the educational project of Montessori Method’s adaptation to Mayan culture is currently running.

Through analysis of qualitative data, this research aims to create an ethnographical record of the first Montessori Method implementation culturally and linguistically adapted in order to face and offer feasible solutions to the educational deficiencies and needs of Mayan children, and to reshape their current violent social relationships model into a pacific and collaborative one. There is a similar implementation, having the Montessori Method as means of educational and social intervention, which has been previously conducted in Mayan communities of Yucatan, Mexico. However, that implementation did not attempt to adapt the Method’s characteristics to the Mayan culture and language, thus making Canicab’s implementation the first one to do so [3].
2. Conceptual Framework

This research relies on Maria Montessori’s method of education philosophical foundations and practical aspects such as materials used, the way lessons should be given, the role of adults around children, and the relations of courtesy, respect and collaboration established for every interaction in The Children’s House. That is the name given by Montessori [4] to the learning space where her educational method should take place, thus making it different from a regular school’s environment, regulations, and curriculum.

Also, this study takes the contents of John Holt’s unschooled education proposal [5] as an ideological basis for establishing the Uj Ja’ Sijo’ob learning community out of the national formal education system, and any institutional and political influence as well. Although Holt’s ideas come from the 1970’s decade, they stay relevant as formal education today continues to face the same issues such as massification and discrimination.

For the practical aspects of this research project’s implementation, characteristics of other culture and language adapted Montessori Method implementations were taken in account. As examples, the ones in India [6] and Puebla, Mexico [7], where Montessori education is also addressed with a social intervention approach.

3. Methodology

This is a qualitative study in which critical ethnography was taken as a model for education research. It was chosen in order to achieve the implementation process’ event reconstruction for further analysis, evaluation, improvement, and research proposals.

Qualitative data was gathered through field notes, photography and videos of the sessions held at the community center, and interviews with children, project volunteers, parents, relatives and other people from Canicab as well. All of this data was analyzed according to Stake’s qualitative data triangulation techniques [8].

The researchers’ role as participant observers changed according to the project’s implementation needs, as it is usual in ethnographic studies [9]. They were teachers, managers, cleaning and maintenance personnel, and volunteers’ trainers and coordinators as well.

4. Results

The research is currently in the stage of results analysis. Early interpretation of the results lead us to identify the changes in children’s learnings and social interactions in different contexts such as the regular school they are currently attending, their family environment, and their neighborhood surroundings. Additionally, the study records the achievements and the obstacles of the practice of this Montessori Method adapted version to Mayan culture and language, as well as those of the implementation process’ logistics itself.

5. Conclusions

The educational opportunities children receive in their early years will allow – or will not, if not given the circumstances- the development of their talents and abilities, and future capabilities [10]. The Montessori Method has proved itself efficient since its first implementation in 1907 in Rome, Italy, by Maria Montessori herself [4]. This research is an effort made in order to bring the educational benefits of the Montessori Method to the Mayan children. Besides, it will serve as a practical example of how this can be achieved with the participation of the community members and the use of resources within their reach.

6. References


The Experiences and Perceived Differences in Working Conditions among Early Childhood Educators Who Have Worked in both For-Profit and Non-Profit Childcare Centres in the Greater Toronto Area

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Canada

Abstract

The working conditions of members from a professional association are required to adhere to high quality standards. Being members of the college of Early Childhood Educators (ECE), the question remains: what do the working conditions of ECEs exemplify about the professionalism of the early childhood education and care (ECEC) field? In an effort to build the professional state of the Canadian ECEC sector one must begin to critically examine the working conditions of ECEs. Efforts towards achieving professional status for all ECEs are evident in the working conditions they are provided, which may vary depending upon whose auspices they are under. This study examined ECEs’ perceptions of the differences in working conditions between for profit and non-profit childcare centres in the Greater Toronto Area. Four ECEs who have worked in both for-profit and non-profit childcare centres were interviewed. In these interviews, the ECEs reported that non-profit childcare centres provide higher quality working conditions than for-profit childcare centres, demonstrating the value and support which an auspice has towards professionalism.
Effects of Equal Spacing, Expanding Spacing, and Massed Condition on EFL Learners’ Receptive and Productive Vocabulary Retrieval

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Abstract

This study investigated the effects of equal spacing, expanding spacing, and massed condition on L2 receptive and productive vocabulary retrieval. The participants were 63 pre-intermediate FL learners randomly divided into one control and two experimental groups. Initially, a teacher-made Vocabulary Knowledge Scale (VKS) was used to select 20 unknown word pairs (each word accompanied by a synonym). The 20 target word pairs were later divided into two A and B 10-item sets. During the treatment, the target items were studied under an equally spaced condition (2-2-2), an expanding spaced condition (0-1-5), and the no-spacing or massed condition (0-0-0). At the end of the experiment, the same VKS was used as a post-test to check the effects of the treatments. The results indicated that introducing spacing had enhanced both receptive and productive vocabulary learning with equally spaced schedule being the superior condition.

1. Introduction

Vocabulary plays a prominent role in efficacious and successful communication and has long been recognized as a vital component and a good indicator of second language (L2) proficiency. In fact, without a vast body of vocabulary knowledge, even those who show mastery of grammar might experience a failure to communicate efficiently [1]. Unfortunately, most learners usually find the task of learning lexical items daunting because of the great number of the words to be learned and the little time at their disposal. They usually consider vocabulary as the major hindrance to reading comprehension, the greatest impediment to listening comprehension, followed by speaking speed and accent, and the greatest obstruction to writing [2]. However, the most influential means of attaining a sizeable vocabulary is still unclear to both teachers and students, thus teachers should take every opportunity to seek for effective strategies to help them in this regard [3].

2. Memory and Vocabulary Learning

As a component of the human mind, memory has a key interface with language learning. The bulk of research on second language lexical processing builds upon Baddeley’s model of working memory and its various components [7]. A central executive directs attention to a word that needs to be processed. If attended to, the data enters the working memory where it is controlled via a visuo-spatial sketchpad and a phonological loop (also called phonological memory or PM). The sketchpad is responsible for processing visual information while the phonological memory (PL) stores auditory and phonological information. It also includes the capacity to rehearse noticed input at a subvocal level, which is particularly important for lexical processing. This is the reason why lexical items need to be rehearsed in order to receive the amount of attention necessary for being sent to long-term memory. The PL connects sequences of sounds using a two-step process: while some sequences are rehearsed, others are temporarily stored in the loop and called up when needed. The identified sequences of the word will be
forwarded to long-term memory. However, in order to strengthen the bonds of those sequences, the word needs to be encountered and processed in the PL several times [8].

It is suggested that at early stages of language learning, when grammatical knowledge is not deep enough, the learner’s main focus is on learning content words [9]. For these learners, grammar acquisition is subordinate to vocabulary acquisition for which phonological memory is of great importance. At this stage, vocabulary learning consumes all or most of the learner's PM capacity. At later stages of language learning, when lexical access is easier, PM capacity is redeployed for learning more complicated grammar.

3. Spaced Repetitions

While vocabulary acquisition is certainly contingent upon repeated encounters with target words, exposure frequency alone might not ensure higher acquisition rates of unknown words. Thereupon, researchers argue that the spacing between repetitions is also of great importance in improving retention [6].

An increasing number of studies in second language acquisition have focused on second language vocabulary as a core component of L2 proficiency in order to help learners improve their vocabulary size and to recycle receptive vocabulary until it turns into productive vocabulary. Since the timing of learning events and multiple exposure influence retention, some techniques that use spacing effects in order to enhance learning have been proposed by many scholars [10].

Spaced retrieval practice or inter-study intervals can be either equal or expanding [11]. The lags between intervals can differ according to four schedules: uniform-short spacing, uniform-moderate spacing, expanding spacing, and contracting spacing [12]. In the equal spacing conditions there are two equal intervals between trials for example, a 0-0-0 condition with no intervening study or a 5-5-5 condition with five lags between trials. The expanding condition involves progressively increased spaces like a 1-4-10 schedule, but the spacing can be inverted in the contracting condition like a 10-4-1 schedule.

Thalheimer [13] asserts that spaced repetitions enhance learning compared to repetitions that are not spaced. Spacing repetitions enable the learners to keep information in memory in a way that makes it less vulnerable to forgetting than non-spaced repetitions. He also assumes that longer spacings tend to produce more long-term recallability than shorter spacings.

Another study [14] reported that expanded retrieval spacing and equal-spaced practice produced the same amount of retention after eight weeks. However, the average retention was higher during expanded intervals over the whole training period. Expanding spacing is often regarded as the most efficient relative spacing schedule. For example, Nakata’s study of vocabulary acquisition under equal and expanding schedules demonstrates a significant advantage for gradually increasing the interval schedules [11].

Nevertheless, Cull [15] argues that, when average spacing is controlled, there may be some restrictions on the advantages of expanded over equal spaced retrieval and, in some cases, there may be no important difference between these two conditions. He conducted four experiments and used conditions without feedback and with feedback after each test. His findings did not show any significant positive effects for expanding spacing, and in some conditions he found that equally spaced retrieval practice led to superior long-term retention after a delay of 3 or 8 days.

4. Method

The research question, instruments, participants, design, and procedure of the study are explained in this section.

4.1. Research Question

This study targeted the following question:

Do different spacing schedules have different effects on EFL learners’ receptive and productive vocabulary retrieval?

4.2. Instruments

The following instruments were used to achieve the purposes of this study:

- The Preliminary English Test (PET for schools) from Cambridge ESOL exams was used to determine the homogeneity of the participants in terms of English proficiency before the treatment.
- A teacher-made Vocabulary Knowledge Scale (VKS) pre-test consisting of 35 vocabulary items was used to select 20 completely unknown word pairs (each word with a synonym).
- A VKS post-test similar to the pretest was administered to measure the effects of the treatment.

4.3. Participants

Seventy female Iranian pre-intermediate EFL learners between 13 and 17 years of age at a language institute in Tehran participated in this study. They were in three intact classes randomly assigned to one control and two experimental groups. The experimental groups studied the target items under equal and expanding
spacing conditions, and the control group studied the same items under a no spacing or massed learning condition. During the treatment, all the participants studied the book *Solutions* (units 9 and 10) [16] in the course of a 16-session semester. However, the target items were selected from *Oxford Word Skills* (the Intermediate book) [17] in order to collect 20 words which were unknown to the students.

### 4.4. Design

A quasi-experimental design with a non-equivalent pretest-posttest design was used in this study.

### 5. Procedure

#### 5.1. Administering the Homogeneity Test

Initially, the Preliminary English Test (PET) was given to all the participants to check their homogeneity in terms of English language knowledge. After the statistical analysis of their scores, 63 of them were chosen as the ultimate participants of the study. They were later randomly divided into one control and two experimental groups.

#### 5.2. Administering the Pre-test

A VKS pre-test including 35 vocabulary items was administered to the experimental and control groups in order to select 20 completely unknown word pairs for the experiment. The VKS involved five levels, from level 1 to level 5 [18]. Based on the scoring scale, a score of 1 or 2 was given to levels 1 and 2, and a score of 3 was given when the student provided a satisfactory synonym. A score of 4 was given when the given word was applied in an appropriate context but in a grammatically incorrect way. A score of 5 was given when the student used the target item in an appropriate context and in a grammatically correct way. Finally, the selected 20 target word pairs (those with a score of 1 or 2) were divided into two A and B 10-item sets.

#### 5.3. Treatment

The whole research project took place over a 16-session semester during regular class hours. The same teacher taught all the three groups. The treatment for the experimental groups began from the fourth session onwards and continued until the 14th session. However, it ended in the eighth session for the control group before administering the post-test the following session.

The experimental groups encountered both sets of word pairs under different spacing conditions. The first group studied set A under an equally spaced condition based on a 2-2-2 encounter schedule, but they studied set B under a 0-1-5 expanding spacing condition. In the equal-interval condition, the items received additional retrieval practice in the 7th, 10th, and 13th sessions, while in the expanding condition, the items received additional retrieval practice in the 5th, 7th, and 13th sessions of the semester. The second group also studied both sets; set A under the expanding and set B under the equal spacing condition, thus counterbalancing the effects of the order of exposure to the spacing conditions. Both expanding and equally spaced schedules had the same absolute spacing (the total amount of spacing), which was 6. In contrast, the control group studied both sets of words under a no-spacing or massed learning condition. Here, all target items were studied four times in a row following a 0-0-0 schedule (i.e., in sessions 4, 5, 6, and 7) to estimate the influence of simple repetition without spacing.

The treatment in all the three groups consisted of 80 trials for the target items (20 items x 4 encounters). The trials for both sets of the target items (sets A & B) were mixed together in all the groups. In other words, the second set (set B) was introduced before the first set of target items (set A) was encountered four times. Each item was studied four times during the treatment in all the three groups. In the first two encounters, the new word and its synonym were presented using flash cards (e.g., the word *detest* and its synonym *hate*). In the last two encounters, the students practiced productive retrieval, during which they were shown each word pair again and were asked to make sentences orally using each target item. At this stage, whenever an error was made, the teacher alerted the students by using facial expression, making a hand gesture, or saying “Can you say that again?” in order to have them self-correct. Peer- and teacher-feedback were also used when self-correction did not occur.

#### 5.4. Administering the Post-test

At the end of the treatment, the same VKS pre-test was given as a post-test to the students of all the three groups to measure the potential changes in their word knowledge. The scoring process was also the same as that for the pre-test.

### 6. Data Analysis

The statistical analyses conducted in order to find an answer to the research question are given below.
6.1. Homogeneity Test Results

The Preliminary English Test (PET) was used to homogenize the participants before the treatment. Out of the 70 students, 63 who had scored within 1.5 standard deviation above and below the mean were randomly assigned to three groups. The descriptive statistics of the three groups are given in Table 1.

Table 1. Descriptive statistics of the PET

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std Error</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>24</td>
<td>64.42</td>
<td>1.64</td>
<td>8.04</td>
<td>.563</td>
<td>0.563</td>
<td>0.472</td>
<td></td>
</tr>
<tr>
<td>Ex 1</td>
<td>21</td>
<td>62.90</td>
<td>1.04</td>
<td>4.77</td>
<td>.422</td>
<td>0.422</td>
<td>0.501</td>
<td></td>
</tr>
<tr>
<td>Ex 2</td>
<td>25</td>
<td>65.72</td>
<td>2.52</td>
<td>12.62</td>
<td>-.002</td>
<td>-.002</td>
<td>0.464</td>
<td></td>
</tr>
</tbody>
</table>

The results of skewness analysis confirmed the normality of score distributions.

6.2. Pre-test Results

Initially, a VKS pre-test was administered to select 20 completely unknown word pairs prior to the treatment. Based on the scoring scale of the VKS, scores of 1 and 2 indicate lack of vocabulary knowledge, thus the target words were those which had been scored between 20 and 40. The descriptive statistics of the 20 target items on the pre-test are given in Table 2. It is worth noting that the scores of seven students who were absent (one in the control group, 1 in the first experimental group, and five in the second experimental group) during the treatment, were excluded from the next analyses.

Table 2. Descriptive statistics of the target items of VKS pre-test

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std Error</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>23</td>
<td>26.52</td>
<td>0.62</td>
<td>2.98</td>
<td>.905</td>
<td>.905</td>
<td>0.481</td>
<td></td>
</tr>
<tr>
<td>Ex 1</td>
<td>20</td>
<td>26.00</td>
<td>0.82</td>
<td>3.67</td>
<td>.454</td>
<td>.454</td>
<td>0.512</td>
<td></td>
</tr>
<tr>
<td>Ex 2</td>
<td>20</td>
<td>27.45</td>
<td>0.84</td>
<td>3.76</td>
<td>0.136</td>
<td>0.136</td>
<td>0.512</td>
<td></td>
</tr>
</tbody>
</table>

The results of the skewness analysis confirmed the normality of score distributions within each group.

6.3. Post-test Results

At the end of the study, a VKS post-test was given to the three groups to check the changes in their word knowledge. Ten target items in each experimental group were studied under the equal spacing condition (2-2-2), and the other ten items were studied under the expanding condition (0-1-5). Thus the number of participants in each group was multiplied by the number of the word sets (2) for the equal and expanding schedules in the following analyses. The descriptive statistics of the post-test scores of the three spacing conditions are presented in Table 3.

Table 3. Descriptive statistics of VKS post-test

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std Error</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mas</td>
<td>46</td>
<td>33.37</td>
<td>0.62</td>
<td>8.37</td>
<td></td>
<td>0.454</td>
<td>0.481</td>
<td></td>
</tr>
<tr>
<td>Equ</td>
<td>40</td>
<td>39.60</td>
<td>0.82</td>
<td>9.57</td>
<td></td>
<td>0.454</td>
<td>0.512</td>
<td></td>
</tr>
<tr>
<td>Exp</td>
<td>40</td>
<td>34.33</td>
<td>0.84</td>
<td>8.17</td>
<td></td>
<td>0.454</td>
<td>0.512</td>
<td></td>
</tr>
</tbody>
</table>

* N = Number of participants× 2 (sets of target items)

Later an ANOVA was run to compare the mean scores of the receptive and productive word gain of the three spacing conditions after the treatment (Table 4). With F (2,123) =6.158, P=0.003 (two-tailed), it was decided that there was a significant difference among the mean scores of the three groups at the end of the treatment.

Table 4. ANOVA for VKS post-test

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>933.543</td>
<td>2</td>
<td>466.77</td>
<td>6.158</td>
<td>.003</td>
</tr>
<tr>
<td>Within Groups</td>
<td>9323.092</td>
<td>123</td>
<td>75.79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To identify the exact location of the differences, a post-hoc Tukey test was conducted. The results of the test are summarized in Table 5.

Table 5. Tukey HSD for the three spacing conditions

<table>
<thead>
<tr>
<th></th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mas</td>
<td>-.623°</td>
<td>1.88</td>
<td>-.10.69</td>
</tr>
<tr>
<td>Equ</td>
<td>-.95</td>
<td>1.88</td>
<td>-.10.52</td>
</tr>
<tr>
<td>Exp</td>
<td>6.23°</td>
<td>1.88</td>
<td>1.76</td>
</tr>
<tr>
<td>Mas</td>
<td>5.27°</td>
<td>1.88</td>
<td>.65</td>
</tr>
<tr>
<td>Equ</td>
<td>.95</td>
<td>1.88</td>
<td>-.351</td>
</tr>
<tr>
<td>Exp</td>
<td>-.527°</td>
<td>1.95</td>
<td>-9.89</td>
</tr>
</tbody>
</table>

° The mean difference is significant at the 0.05 level.
Post-hoc comparisons indicated that the mean of the equally spaced schedule (M=39.60) differed significantly from that of the massed and expanding interval schedules. Seemingly, the equal spacing condition (2-2-2) was a key element in the superiority of this condition over the other two in this study. Next, two independent-samples t-tests were run in order to compare the mean scores of receptive and productive word gains of the two sets of target items under the equal and expanding spacing conditions (Tables 6 and 7).

Table 6. Independent samples t-test for productive word gain on VKS post-test of the spacing conditions

<table>
<thead>
<tr>
<th>Levene’s test</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances</td>
<td>1.126</td>
</tr>
<tr>
<td>Not equal variances</td>
<td>-0.275</td>
</tr>
</tbody>
</table>

With F=1.126, p=0.292 (two-tailed), it was decided that the variances of the two conditions were equal on the post-test. Moreover, with t (78) = -0.275, p=0.784 (two-tailed), it was concluded there was no significant difference between the means of the participants’ productive word gain under the two spacing conditions (equal and expanding).

Table 7. Independent samples t-test for receptive word gain on VKS post-test of the spacing conditions

<table>
<thead>
<tr>
<th>Levene’s test</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances</td>
<td>0.139</td>
</tr>
<tr>
<td>Not equal variances</td>
<td>2.147</td>
</tr>
</tbody>
</table>

With F (78) =0.139, p=0.710 (two-tailed), it was decided that the variances of the two schedules were equal on the post-test receptive word gain scores. With t (78) =2.147, p=0.035 (two-tailed), it was concluded that there was a significant difference between the means of the participants’ receptive vocabulary gain under the two experimental conditions. The magnitude of the difference between the means under the two spacing conditions (mean difference = 5.50, 95% CI: 0.4 to 10.60) was moderate (eta squared = 0.06). Therefore, the treatment (equal spacing condition) had helped to improve the L2 learners’ receptive vocabulary retrieval.

7. Discussion and Conclusions

The aim of the present study was to investigate the effects of massed, expanding, and equally spaced retrieval schedules on EFL learners’ receptive and productive vocabulary retrieval. The results indicated that the participants had significantly greater gains on receptive vocabulary retention in an equally-spaced (2-2-2) schedule in comparison to the expanding and massed schedules. Although all the three groups, regardless of the encounter conditions, had performed significantly better on their post-test, significant changes in receptive vocabulary gain were only observed under the equally spaced condition.

There might be at least two main reasons for this finding. First, unlike most prior studies comparing spacing conditions within a single learning session followed by an immediate post-test soon after the treatment [e.g. 11], here the repetitions and the post-test were given over multiple spaced learning sessions. As Kang et.al, [14] argue, spaced repetition and immediate post-test within any single session, however it may be scheduled, is irrelevant to real-world learning scenarios and rarely sufficient for long-term retention. The timing point of testing influences the retention. Moreover, if words are tested minutes after the encounter, the loop is still active. At that point, it is difficult to say if a record has been created yet [19]. Second, productive retrieval is clearly more demanding than receptive retrieval.

The results of this study do not support those of some previous studies reporting the superiority of expanding over equal spacing [11]. However, they are in line with some others suggesting that, when long-term retention is evaluated after a delay, equally spaced practice is superior to expanding retrieval [8 & 15]. The present study highlights the beneficial effects of repetitions occurring in separate spaced learning sessions on both receptive and productive vocabulary retrieval regardless of the spacing pattern.

This study demonstrated the advantages of equal spacing over expanding and massed spacing conditions. However, similar studies conducted over a longer period of time and with larger samples at different proficiency levels might yield different results. Moreover, further research should address the optimum spacing condition for vocabulary learning and retention. The use of a delayed post-test to measure...
long-term vocabulary retrieval in future studies in more
authentic learning situations could also provide some
noteworthy data regarding accessing the learnt material
in the long run. Finally, here, the Vocabulary
Knowledge Scale was used to measure the participants’
receptive and productive word gain. Other measures of
vocabulary retention might provide different results.

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Language Vocabulary Knowledge: Depth vs. Breadth”,

Vocabulary Acquisition: Short-term Gains vs. Long-Term
Session 13: Language Education

Title: National Identity Clarity or Confusion: English and Urdu Textbooks
(Author: Ashar Johnson Khokhar)

Title: Ontario’s Revised French as a Second Language Curricula: New Directions for Core French
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Title: Voices of Secondary Emergent Bilinguals about Their Schooling Experience
(Author: Won G. Kim)
National Identity Clarity or Confusion: English and Urdu Textbooks

Ashar Johnson Khokhar
Forman Christian College (A Chartered University), Pakistan

Abstract

The curriculum revision in Pakistan has always been a politically and religiously motivated exercise and this was initiated because of criticism by the religious and political parties. The most recent curriculum revision happened between 2006-2015. The present study looks at the changes made in the textbooks between 2014-2016 and explores the concepts of national identity promoted through the texts. For this study, the textbooks approved by the Punjab Textbook Board and published by different public and private publishers for the academic year 2014-2015 & 2015-2016 were studied. The content of the textbooks was analyzed using the critical discourse analysis approach. The analysis of the textbook content found ‘Islam’ & ‘Muslims’ as the common thread amongst all the analyzed textbooks. This thread suggests a single identity, which is synonymous to Islam, ‘Pakistanis are Muslims’. This study suggests pluralistic and inclusive content in the textbooks informing students about the TRUE Pakistani society.

1. Introduction

Education in Pakistan is always seen as a key to all its social and economic ills as it is also suggested in the most recent education policy of the government of Pakistan [1]. This policy suggests to all stakeholders to work towards developing learners’ critical thinking faculty so that they can contribute in making Pakistan a country safe where all its citizens live together in harmony. The language textbooks are used to inform students about Pakistan's social, political and cultural heritage. The textbook is a very important tool used by the Government of Pakistan to communicate to the learners the image of Pakistan considered important and worthwhile by the state.

The developers and the writers may use the content of the textbooks either upgrade or degrade students’ ideas about social issues mentioned above. This study is trying to promote professional critical thinking of those engaged in the process of the textbook, from its conceptualization stage to its printing stage. The content of the textbooks represents a continuous struggle between and amongst different discourses and ideologies each struggling and competing for dominance. [2]. The content of the textbooks, the stories, poems, bibliography, essays, and dialogues are representative of few groups of Pakistani society and ignores many others groups.

2. Research Methodology

2.1. Statement of the Problem

Fairclough [2] suggests that curriculum and textbook writers choose what is included and what is excluded, what is made explicit or left implicit, what is foregrounded and what is backgrounded, what is thematized and what is unthematized, what process types and categories are drawn upon to represent events, and so on. Gee [3] said it in a different way "when we speak or write we always take a particular perspective on what the world is like". The curriculum and textbook writers are both informed and controlled by the language, ideology, social settings and perspective and in turn, they also inform and control others, that is, students, teachers, parents, and families.

The researcher is going to use CDA approach on language textbooks, both English and Urdu, secondary classes, six to ten, which were approved and authorized by the Punjab Textbook Board, Lahore (a body of the Government of the Punjab) and published by different private publishers. This study is aimed at finding at how the other, ethnic and religious groups are presented as Fowler [4] claims, "anything that is said or written about the world is articulated from a particular ideological position".

The content is focused either on confirming the existing social structures and identity or challenge these structures and identities for their failures to construct the perceived national identity of the textbook writers. The analysis of the content will reveal the explicit features and the implicit ideas given through text and images which in effect influence students’ understanding of the other, to better understand the ideas put forward and promoted to establish the national identity of students of these textbooks.
2.2. Research question

1. What is the national identity narrative found in English and Urdu textbooks of studied by students of secondary schools?  
2. How is the Pakistani nation, its cultural, historical and religious diversity portrayed and represented in the textbooks?

The textbook is one of the tools used all over the world to inform students about a country’s social, political, cultural and religious heritage and history. The language textbooks are valued as a very important mouthpiece of a Pakistan state as it portrays and communicates to students what state considers important and worthwhile to be communicated. The stories, dialogues, and images used in language textbooks represent the religious and ethnic minorities, social inequality and cultural and ethnic diversity of a country.

Fairclough’s [2] critical discourse analysis approach which in itself is the practical application of the systematic-functional grammar (SFG) developed by Halliday, Matthiessen, and Matthiessen [5] is used to analyze the contents of the textbooks. The SFG discloses the relationship between power and ideology by studying the content, social relations and subject positions in the textbooks. The elements such as ideational, interpersonal and textual functions are considered while examining the contents. Fairclough [2] refers to the content as the writer's personal experiences of the world s/he lives in and people s/he interacts with. Relations show the social relationship established and developed through the text such as family, classmates, colleagues, or friend. The social identity of those who interact in the texts, for example, people belonging to different professions, people living in an area, employee or employer is referred to as subject positions. The dialogue between the reader and the text refers to the content, positions different people assume during this interaction is considered social relations and positions taken during the discourse is called subject positions. Fairclough [2] is aware of the problem with these three elements as he declares that all three (relation, subjects, contents) overlap and co-occur in practice, but it is helpful to be able to distinguish them.

3. Literature Review

3.1. Nationalism and National Identity

Miller [6] has theorized a nation as a political community who control and aspire to control “a chunk of the earth’s surface” with the aim of governing themselves, establishing rules and regulation according to the popular political ideology. The scholars have understood nationalism with primordialist and modernist approaches. The latter group views nation as formed by the history of a nation; the bureaucratic ideas of governance; the rise of industrial economy and capitalism; and spreading of secular norms. The proponents of primordialist approach argue that primordial elements such as historical memories and roots, ethnic origins, symbols and shared myths, language etc. influence the processes of formation of nationalism and national identity. The popular idea of a nation-as-community is accelerated by how people understood time, space and traditions. The invented traditions such as myths about nationalists are sometimes invented but most of the time borrowed and transformed in order to revive them, have also played an important role in forging a nation’s understanding of nationhood and national identity.

The proponents of modernist perspective of nationalism and national identity disagree with the ideas that these ideas have any pre-modern origin. For example, Gellner [7] says that nationalism is the awakening of nations to be self-conscious: it invents nations where they do not exist (p. 169). This perspective is not without its critiques such as Anthony Smith and John Hutchinson who have suggested that nationalism and nation identity is rooted in its primordial elements, especially ethnic origins. Billing's [8] idea of "banal nationalism" found small words rather than grand phrases that generate the unforgettable memories of national identity. The discourse of nationhood is influenced by everything surrounding humans and it is so integrated that we cannot see it with our naked eyes.

Lipowatz & Demertzis [9] argued that nationalism is a political ideology and it can only be created and sustained with three ideological mechanisms which are generalization, naturalization, and identification. Barthes [10] has argued that the interests of an individual are generalized and it appears to be the interests of a group and thus these interests are given priority over other interest. Naturalization is a fundamental function of ideology and "nationalism is the ideology by which the world of nations has come to seem the natural world" and thus what appears natural becomes automatically excused, justified and, in the end, legitimised as suggested. The third element of this process is identification which is a process of unconscious internalization. The process of identification, fully or partially, with a nation’s interests and to defend it wherever need and whatever sources required.

Ahmad, Ali, Khan & Khan[11] while analyzing the education policies of Pakistan say that the foremost is the issue of ideology – the role of Islam in curriculum and instruction. They are also aware of the debate going about this issue as they also summarize the views of both the groups. Quaid-e-Azam Muhammad Ali Jinnah, the father of the
nation, conceived the education system that develops national character of Pakistani generation. They identified high sense of responsibility, social integrity, selfless service to the nation and morality as the core values that education in Pakistan should strive to develop and promote amongst the Pakistani students.

The education system in Pakistan is focused on developing Islamic identity and this is achieved through education infrastructure, educational material, and educational rules and regulations. This idea of Pakistan by the All India Muslim League was all about Muslims and not about Islam as Noman [12] suggested that the resolution passed in 1940 “can be explained without reference to Islam (emphasis original), though not without reference to Muslims”

Raina [13] in his article about religious minorities in Pakistan has identified two major perspectives regarding minorities in Pakistan. The first perspective is that religious minorities are equal citizens of this land and founding fathers of Pakistan never visioned Pakistan as a state where religious minorities would be considered equal to the Muslims, the majority group. This group present as evidence Mr. Jinnah’s speech first presidential address to the Pakistan’s Constituent Assembly at Karachi on August 11, 1947, before taking over as the first governor-general of Pakistan. Quaid-e-Azam (the great leader) said; ‘religion or caste or creed...has nothing to do with the business of the State’, where ‘no matter what community he belongs, no matter what relations he had with you in the past, no matter what is his colour, caste or creed is first, second and last a citizen of this State with equal rights, privileges and obligation...’; and where ‘we are all citizens and equal citizens of one State’ [14]

The second perspective is that Pakistan movement was all about Islam and Muslims and the purpose was to create a state where Muslims will practice freely the Islamic teachings and all religious minorities will be treated according to the laws Islamic laws prescribed in Koran. Jinnah has used the phrases “true Islamic state”, “Muslim rule”, and his most quoted speech ‘lay the foundation of our democracy on the basis of truly Islamic ideals and principles’ is often quoted to support the second perspective. The religious minorities are subject to a so-called loyalty test to be given a conditional citizenship and not equality.

“[minorities] will be treated as equal citizens with all your rights and obligations so long as you are loyal to Pakistan... Minority communities must not by mere words but by actions show this that they are truly loyal and they must make [the] majority community feel that they are true citizens of Pakistan’ [14].

Jinnah’s successor, Liqat Ali Khan presented and got the so called The Objective Resolution passed through the Constituent Assembly [15]. The Resolution asserts that Allah is sovereign over all “the entire universe” and thus Pakistanis cannot claim to have full authority over their lives and the land but limited and whatever authority they exercise emanates from Koran.

The resolution stated the goal of the state as enabling Muslims to live their lives as per the ‘teachings and requirements of Islam’. The narrative of nationalism and national identity can be summarized as “Pakistan is a Muslim state and its laws will be derived from the teachings of Islam and no law will be made that is contrary to the Islamic teachings. Pakistan will work with all Muslims considered Muslims in the light of the Constitution of the Pakistan and support all Muslims causes and movements. Muslims should be treated fairly and equally in all countries as per the laws of the secular states. Muslim countries should treat religious minorities as per the guidelines given in the Koran.

3.2. Curriculum and Textbook

A study by Durrani & Dunne [16] has researched the “relationship between education and conflict” and found a link between education and its capacity to “exacerbating and ameliorating conflicts”. The curriculum and textbooks in Pakistan have formed the national identity that is rooted in Islam, though it has many opponents of this trend that started in the 1970s. Cohen [17] has argued that Pakistan is seeing the clash between different versions of national identity. The questions such as who is a true Muslim, for whom Pakistan was created, and whose vision should it follow have been discussed vehemently on all platform and it has seeped into the debates around curriculum and textbook too.

Under the 18th Amendment, education is provincial matter but still, Federal Ministry of Education, renamed as Ministry of Federal Education and Professional Training still oversee the formulation of national curriculum though all the four provinces have their own textbook board. The curriculum documents prepared for teachers contain information such as what to teach [content] why to teach [the purpose of teaching a subject], and how to teach [classroom pedagogy and assessment practices]. The textbooks are designed for students and all textbooks are sent to the Curriculum Wing for review and feedback. The textbook boards move to the publishing and distribution of the textbook once Curriculum Wing approves the content of the textbooks. The contents of the textbooks taught all over the country are more or less the same and it represents the state’s version of Pakistan, what it should be. The curriculum and textbooks also
represent the thoughts that form the nationalism and the national identity ideas [18].

The content described through different stories and images prescribed in textbook is considered the only source of correct and authentic information for students and thus contribute in constructing the politically legitimate identity constructions. The dominant classroom pedagogy in Pakistani schools is to memorize to recall and students are tested how much they can recall. Kalmus [19] has suggested that in such situations, the hidden messages carried transmitted through textbooks are taken for granted by students as the alternate opinions are non-existent.

The only source of alternate opinion is the teacher who may attempt to transmit the other opinions, missing in the textbook. In such a pedagogical environment textbook yields an enormous institutional authority which shapes the political, social and religious ideologies of students and thus forming their ideas of nationalism and national identity.

Language textbooks as Ndura [20] claims affect students’ choice of words and phrases they use, attitudes they display and viewpoints they share in their lives. The various ways texts and images presented in language textbooks have influenced students’ communication styles and preferred words and phrases. The contents of language textbooks do not just comprise of words, phrases and sentences to be learned but these texts have power over students as Da Silva [21] suggested in his study. The language curriculum and textbooks very implicitly create, validate, authenticate, authorize and circulate an ideology conceived by the curriculum and textbook writers.

### 4. Analysis of Findings

#### 4.1. Pakistani identity: Islam and national unity

Religion (Islam) is used by the curriculum and textbook writers to produce and reproduce the notions of what is meant to be by being a Pakistani. The last two national educational policies of Pakistan suggests that Islam is the foundation and Pakistan will only be built on this foundation and without it, Pakistan will lose its distinctions, a country made for the Muslims of South Asia to experience Islamic life [16].

All educational policies have presented Islam as the only framework around which the accepted ideas, values and practices will be encouraged and thus Islam is a significant part of Pakistani identity promoted through textbooks. The policy makers and curriculum developers construct the Pakistani identity around ‘oneness’, leaving out all the diverse religious, ethnic, linguistic, regional and gender differences. This idea of ‘oneness’ prevalent in all education policies till date, curriculum documents and textbooks is “dilution of Pakistani identity” ignoring the multi-ethnic, multi-religious, multicultural dimensions of Pakistan by focusing only on Pakistan as a homogeneous stage and all people are bound together through the Islam.

<table>
<thead>
<tr>
<th>Class</th>
<th>Urdu Textbook</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class 6</strong></td>
<td><strong>Hamad (Poetry)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Naat (Poetry)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Hajra-e-Aswas ki Kahani (prose)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Kidmat-e-khalaq aik abidat (prose)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Yumi-e-Difa (prose) - slogans of allah awkbar how Islamic state was protected against the non-Muslim agressor</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Sehat-o-Safai (prose) - importance of cleanliness in Islam and what prophet said about it</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Islamic Murmaik ki tanzeem (prose) – alliance against non-muslim countries considered enemies of Muslims</strong></td>
</tr>
<tr>
<td><strong>Class 7</strong></td>
<td><strong>Hamad (Poetry)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Naat (Poetry)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Hajra-e-Aswas ki Kahani (prose)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Kidmat-e-khalaq aik abidat (prose)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Nazam-o-Zabad (prose) - prophet gave importance to discipline</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Sab say oncha yeh janda hamara (prose) - the meaning of star, five corners, five pillars of Islam</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Adab-e-Musharat (prose) - all Muslims are brothers so they should respect each other and forgive mistakes by their brothers</strong></td>
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<td><strong>Class 8</strong></td>
<td><strong>Hamad (Poetry)</strong></td>
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<td><strong>Naat (Poetry)</strong></td>
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<td><strong>Dura-e-Dil kay wastay paida kia Insan koo, Hazrat Omer bin Abdul Aziz, Iqbal’s poem (La illah ill laal lahl)</strong></td>
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<td><strong>Milli Wahdat (prose) - non-Muslim are persecuting Muslims where Muslims are a minority</strong></td>
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<td><strong>Khwateen ka Makam aur aun kay Hakook (prose) - Islam is the only religion that has given women rights</strong></td>
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<tr>
<td><strong>Class 9 &amp; 10</strong></td>
<td><strong>Hamad (Poetry)</strong></td>
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<td><strong>Naat (Poetry)</strong></td>
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<td><strong>Taloah Islam (Poetry)</strong></td>
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<td><strong>Shan-e-Taqwa (Poetry)</strong></td>
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<td><strong>Hazrat Omer Farooq (prose)</strong></td>
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<td><strong>Nazria-e-Pakistan (prose)</strong></td>
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<td><strong>Safar Kamyabi ki kunji hay (prose)</strong></td>
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<td><strong>Fatima binat-e-Abdullah (prose)</strong></td>
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5. Discussion

5.1. Pakistani identity and the external other

Edward Said [22] argued that it is essential to establish ‘us’ and ‘others’ as the latter is subject to change depending on how the former interpret and reinterpret their differences from the latter. The language textbooks are full of such references where curriculum developers and writers have defined ‘us’ in very explicit terms and ‘others’ in implicit ways, that is, what is not ‘us’ is the ‘other’. Kumar [23] called the teaching of official and political history of a country as the process of defining the ‘other’. The stories about Syed Ahmad Khan, (Allama) Mohammad Iqbal, (Quaid-e-Azam) Mohammad Ali Jinnah are narrated to emphasize the concept of two-nation theory, highlighting the differences between Muslims and Hindus which became the focal point of Pakistan movement as the texts narrate.

The life stories of army men who were declared martyr by the state are also part of the English and Urdu textbook and all of them are Muslim, which some scholars argued is Pakistan’s military’s glorification. Hussain [24] says “Pakistan … needs an antagonist India to define its distinctiveness and maintain internal cohesion”. The English and Urdu textbooks are full of religious imagery to enforce and reinforce religious nationalism and defining who is ‘us’ and the ‘other.’ This also shows that Islam is the key element that identifies a soldier belonging to Pakistan military and the Indian or a non-Muslim army. These stories also portray Muslims as masculine, determine, strong and heroic and passionate about their country, their Muslim country fellows, and their religion while the ‘other’ (India or Hindu) are depicted as feminine, defeatist, weak with no desire to protect their country fellows. In the texts, though not explicitly but implicitly the ‘other’ is defined as non-Muslim.

5.2. National identity and internal ‘others’

The textbooks studied in this study shows that Pakistani identity is associated with Islamic identity as there is no reference to other faiths practiced in Pakistan. Miller [6] contends that religious identity and national identity are different as the former does not require physical boundaries while the latter emerges and formed and strengthened in a geographically enclosed place as other national identities also exist in their neighboring countries. There are many religious and political commentators claiming that Pakistan is actually created to make it into a pan-Islamic state which contradicts the founding father’s vision of Pakistan who wanted to see it flourish as a multi-culture, multi-faith state. The English and Urdu textbooks depict all Pakistanis as practicing Muslims, women cover their heads
whether they are in their houses or out, doing different chores. The Curriculum objectives of the religious texts either prose or poetry focus on making the readers good Muslims who are aware of how to live their lives according to the Islamic teachings by following the life stories of Prophet Mohammad and the early Muslim rulers and people close to Prophet Mohammad. For example, the Kalash tribe found in the Northern areas of Pakistan, which is now part of the newly created province called Gilgit-Baltistan. This area is also home to many Buddhist era ruins. The English and Urdu textbooks do not have a single word about this group, thus making them as the other. There is a small religious group named Zoroastrian that has been living in areas that became Pakistan at the time of partition of the Indian subcontinent. The students remain unaware of the existence of these two ethnic and religious groups as the textbooks are not considered an appropriate tool to make students aware of all faiths and ethnic groups practiced in Pakistan. This trend shows that only those groups are included in the texts which fall under the category of national identity which is synonymous to Muslim identity, thus excluding many millions of people living in Pakistan. Durrani & Dunne [16] puts this way “…while unifying Pakistani Muslims, it alienates non-Muslim Pakistanis” in their study while analyzing how curriculum of Social Studies taught in Pakistan shaping students views about non-Muslims. The textbooks analyzed in this study contains not a single story about non-Muslim Pakistani and no mention is made of non-Muslims living in Pakistan, how they are, their religion, religious festivals etc. The only heroes who can be given space in the textbooks are Muslims as all non-Muslims are considered enemies of Islamic Pakistan.

6. References


Ontario’s Revised French as a Second Language Curricula: New Directions for Core French

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Abstract

Ontario’s Ministry of Education has recently redesigned two new French as a second language (FSL) curricula in the elementary [1] and secondary [2] teaching panels. The newly designed programs no longer model previous iterations of the FSL curricula. This curriculum shift requires a thorough and ongoing investigation to determine how curriculum users perceive the new curriculum and how they plan to implement this new curriculum. This paper summarizes initial curriculum reactions and implementation strategies of the 2013 [1] and 2014 [2] Ontario FSL curricula through a Master’s thesis [3] as well as for an upcoming doctoral study with the focus of the beginner-level, Core French Program. Curriculum as a concept is defined through a specific vantage point as a newly-licensed FSL non-native French teacher. Next, this article presents a brief overview of Ontario FSL education, reflecting the curriculum revision process. As a returning Ontario FSL secondary school teacher, curriculum change is then described and reflected upon with a personal researcher-practitioner stance. Initial conclusions establish that the curriculum revision process is overall positive for student acquisition of French but that teachers may require ongoing practitioner development to effectively implement the new curricula.

1. Introduction

It is important for stakeholders in education to think about how curriculum is defined, implemented, and influenced in modern society. These fundamental questions speak to a larger issue in Ontario and particularly in the French as a second language (FSL) teaching context.

Ontario has recently published two new curricula for the elementary [1] and for the secondary teaching panel [2]. It has been approximately 15 years since the previous curriculum revisions. Ontario FSL teachers are currently implementing this mandated curriculum change which has implications affecting their unique instructional practices. As such, their individual curriculum ‘road map’ is still being defined and adapted to the new curricula.

Curriculum revisions can be a catalyst for teacher-anxiety. Newly licensed teachers – who are actively looking to master the new curriculum and who may not have an extensive teaching base – potentially are at risk of being even more adversely affected.

From personal experience as a current and newly-licensed Ontario FSL high school teacher, curriculum success is defined as being a successful educator who addresses all of the curriculum macro and micro expectations. At the other end of the spectrum, there may those who completely disregard a curriculum document, letting it collect dust in their workroom shelves, deeming it not to be relevant and compatible to their day-to-day classroom realities. For the Ontario FSL context, curriculum therefore is a socially-defined and problematic term, leading to varying curriculum realities, encompassing both successes and failures.

2. An Overview of Ontario FSL Programs

While the focus of this article is on the Core French (CF) context, a brief description of each program is described to contextualize the Ontario FSL ‘landscape’. In Ontario, students wishing to pursue French as a second language have three options: Core French (CF), Extended French (EF) or French Immersion (FI). As there are no definitions to distinguish the various programs, CF is defined as ‘essential’ French for basic communication whereas, the Extended (EF) and French Immersion (FI) programs extend to cross-curricular activities such as teaching science in this target language (TL).

Irrespective of the French program, according to the Ministry of Education [2], all Ontario FSL students need to “communicate effectively, and thrive in an ever-changing global community” (p. 3).

Each Ontario FSL program carries various requirements for successful completion of the elementary school program. The elementary curriculum [1] states that CF students must complete “a minimum of 600 hours” (p. 15). Extended French and French Immersion students must exceed CF hours with EF requiring students to complete “a minimum of 1260 hours” (p. 15) and FI students to complete “a minimum of 3800 hours” (p. 16) by their final year.

Specific to the Ontario FSL high school context, students have the option to pursue French in either the academic or applied stream. In the revised secondary curriculum [2], students must complete “One FSL credit (110 hours) from any of the three programs” (p. 16) for graduation. From personal experience as a current FSL teacher, academic French aims to teach students complex language structures whereas applied and open-level
classrooms focus on the basic working knowledge of French.

3. Necessary Curriculum Reform for Ontario Core French Education

While it is normal that Ontario’s Ministry of Education annually completes curriculum reviews, Ontario FSL stakeholders view the curriculum revisions as true paradigm shifts. From personal teacher-practitioner experience, as well as from previous research participants of a Master’s thesis [3], the revised Ontario FSL curricula underwent a reconstructive ‘facelift’. The overall vision of the revised curricula, for example, in the secondary curriculum [2], is for students to “communicate and interact with growing confidence” (p. 6). For both school panels, there is an increased focus of oral fluency development for FSL learners as the speaking and listening strands are two separate entities. Additionally, intercultural education now carries an equal importance to each FSL program with its own sub-section within the listening, reading, writing and speaking strands. Another main change of the curricula is the removal of explicit grammar concepts to focus on a more task-based orientation to learning French in Ontario.

This paradigm shift was a necessary curriculum change because of Ontario’s negative history with FSL education. Researchers such as Cummins [4] observed that the poorly designed programs contributed to significant student drop-out rates. Others, such as French and Collins [5] and Cooke [6], identified teacher attrition out of FSL programs for non-French teaching roles.

In the past decade, the previous curriculum ‘success’ was the ability to teach French with a focus on French grammar. In fact, grammatical accuracy dominated the previous Ontario FSL curricula. This is believed to have discouraged students from pursuing ongoing French studies as it did not represent the day-to-day French exchanged by native speakers.

Research, such as the Canadian Association of Language Teachers (CASLT) [7], has already identified that CF was the most frequently enrolled program in Ontario. Ironically, other FSL stakeholders including the House of Commons [8], Cooke [6] and Lapkin, Mady, and Arnott [9], identified that this was a marginalized and abandoned FSL program. From personal experience using the previous curricula versions, it was apparent that FSL teachers lacked sufficient classroom resources to teach the curriculum effectively. Theorists such as Netten and Germain [10] noted that students were also discouraged due to the lack of oral-language practice and exposure in their classrooms. These were just some of the challenges that faced Ontario CF teachers and students.

4. The ‘Newbie’ Ontological Teacher-Researcher Hat

The research inquiry of this article reflects an ontological stance, otherwise known as the researcher’s lived reality as a newly licensed researcher-teacher. Additionally, by being a non-native French teacher-speaker, curriculum operationalization may be implemented somewhat differently than a francophone FSL educator.

Personal experience – from a CF student to finally a FSL educator and researcher -- has provided ample curriculum knowledge of the previous French curricula and is reasonable to expect that other teachers have faced similar experiences. As the revised 2013 [1] and 2014 [2] FSL curricula are extremely new in Ontario, many FSL teachers may lack the experiential teacher knowledge to effectively teach the new curricula. Stakeholders may question the expertise of non-native French speaker-teachers to effectively implement the curricula with a focus on culture and oral proficiency. The ‘newbie’ Ontario FSL CF teacher may also find the curriculum shift from grammatical accuracy to oral proficiency challenging without the abundance of technology in predominant English-language communities. Even with many Ontario FSL teachers having proficiency with the previous FSL curriculum, teacher development and change may be necessary to effectively deliver the new curricula.

5. Engagement or Despondence with the Elementary FSL Curriculum

A most recent Master’s-level thesis [3] was an exploratory case study that investigated elementary-level, CF teachers’ curriculum perceptions and management strategies in 2014 which was the first year of official curriculum implementation. The middle-school context from grades four to eight was the focus of this study as it is the ‘mid-point’ of a student’s career. In the Ontario FSL context, this period is critical because the students already have a base with the French language but at this point need to determine if they wish to continue their language abilities in subsequent years.

The four teacher-participants were all non-native French speaker-teachers working in the Greater Toronto Area in the public and Catholic school systems. They all described themselves to be ‘ambitious’ FSL teachers through their multiple Board-level and school-level professional development initiatives. From being a corrector of a national exam in France, to pursuing an international exchange to improve French proficiency-levels, each teacher-participant could be characterized as an ‘exceptional’ CF teacher.
In terms of professional teaching experiences, there was a balanced level of newly-licensed FSL teachers along with seasoned practitioners working more than 15 years in the profession. Data collection methods included multiple sources of information to allow for profound practitioner experiences using a new curriculum. To begin, an initial questionnaire regarding curriculum perceptions and initial curriculum management strategies was distributed to each teacher-participant. Next, one-on-one interviews were conducted whereby each participant shared personal classroom experiences evaluating and implementing the new curriculum. Finally, one focus group concluded the study where all four participants had the opportunity to intermingle and engage in a networking opportunity. At this time, each participant was asked to illustrate his or her curriculum ‘identity’ on chart paper.

D’Artagnan was the only male participant and the oldest FSL teacher of the study who conceptualized himself as ‘Moses’ as illustrated in Figure 1. Moses was chosen because he felt that he was already an expert with FSL curricula as a result of his Ministry-level interactions and overall number of teaching years in the profession. Irrespective of his position, he too, felt uneasy with some of the curriculum revisions. According to the Master’s study [3], D’Artagnan thought that the official intercultural strand “required “special support” and appropriate “grade-level resources” (p. 52). He admitted that his planning style had to evolve with the new curriculum as he had to teach his students how to re-learn French class routines such as playing games. Previously, he noted that his students “were used to drill […] and copying notes into their notebooks” (p. 52). Despite his positive attitude towards the revised elementary curriculum, D’Artagnan drew voices from above his Moses to represent the consistent pressures and interruptions from authority in his school building which prevented a fully successful curriculum implementation.

Prior to launching this exploratory case study, it was assumed that the two newly-licensed FSL teachers (Madeleine and Helena) would both have a positive attitude regard to the revised elementary curriculum [1] because of their recent training during their teacher’s college program. Their attitudes were different: Madeleine maintained a more positive approach to curriculum change than her counterpart, Helena. Figure 2 summarizes Madeleine’s curriculum operationalization beliefs and techniques in the form of a puzzle.

Essentially, Madeleine was cautiously optimistic with regards to the curriculum implementation process. She thought of herself as a puzzle-builder, carefully selecting the most appropriate piece to form an accurate illustration of her CF classroom. As identified in the Master’s thesis [3], Madeleine felt that in time, “the curriculum user discovers “where the piece goes”” (p. 62). She demonstrated an ongoing willingness to share and learn from others. For example, Madeleine consulted online teacher blogs, reviewed a plethora of FSL reading materials and improved her own French through extracurricular French training.

Helena, who received her Bachelor degree in French from the same university at the same time as Madeleine, preferred the previous curriculum with its explicit grammar focus. Figure 3 is her representation of self in the middle of the ‘road’ as a new curriculum user.

As evidenced in the study [3], Helena found curriculum and practitioner change as “a hard process” (p. 80). She felt that removing the explicit
grammar expectations helped some students speak in French yet would not prepare the academically-bound students for university. As such, Helena drew herself as a sheep on the quest to follow the “leader [...] the blind leading the blind” (p. 80) at the ‘crossroads’ of deciding which unique path to follow as a new curriculum implementer.

Overall, the four teacher participants of this study appreciated the revised elementary curriculum’s new intercultural strand and agreed that oral proficiency development was more important than written, grammatical accuracy. They implemented most of their curriculum strands by way of combining multiple curriculum expectations into one lesson. In fact, it was rare that participants taught one curriculum expectation per lesson. Significant, all the participants asked for additional teacher training and funding for resources.

The participant experiences and curriculum perceptions reflected Cummins’ [11] nested pedagogical orientations. In this paradigm, teachers shift through different perceptions as to how to teach, each carrying different benefits and challenges. For example, the participants of the Master’s thesis [3] transmitted explicit content such as grammar directly to their students with no authentic task to resolve. In other examples, the same teacher-participants shifted their practice to more of a socio-constructivist orientation by way of “hands on activities such as the restaurant and the wedding simulations, as well as having students fill out customs declaration cards” (p. 102). The teachers also empowered their students through the transformative orientation when “selecting appropriate materials attainable and differentiated for each student” (p. 113). The orientations remind educators of the importance “to connect curriculum content to students’ lives” (p. 31).

Their curriculum perceptions and operationalization techniques reflect the uniqueness of every Ontario FSL teacher regarding the ability and acceptance to adapt to curriculum change. Regardless of their teaching experience, their language proficiency, their district, and other factors, all four participants attempted to improve their practice with their own teacher-led change.

6. Future Research Plans

Scholars such as De Lira e Silva [12], Cooke [6], Piccardo [13], Mison and Jang [14] and Faez, Majhanovich, Taylor, Smith and Crowley [15] have already identified that more Ontario FSL, and specifically CF teachers, are adapting to the new curriculum changes with additional learning time, ongoing professional development, and the provision of ample resources. The same researchers equally concluded that more time is required for FSL teachers implementing the new curriculum changes to truly determine curriculum success.

From personal experience teaching the revised secondary curriculum [2] in a Greater Toronto Area applied-level, grade 9 classroom during the period September 2016 to January 2017, the observed students still struggled speaking in spontaneous French. Authentic tasks became the focus of the lessons in the classroom, utilizing diverse scenarios ranging from speed dating conversations and ordering a pizza in Montreal. Additionally, previously taught grammar points -- such as the direct object pronouns in the past tense which dominated the previous curriculum edition -- were not included in this semester. Despite the removal of much of the explicit grammar teaching and the infusion of task-based opportunities in this classroom, many students were still dependent on online translation software to understand authentic French. Many could not form basic conversational sentences. This recent experience in the CF high school classroom suggests that additional curriculum training and research is required successfully administer the curriculum and to further encourage student enrollment in FSL programs. CF teachers need to know the best way to engage with adolescent students using age-appropriate yet level-appropriate language content for them to achieve the desired target language competencies.

To address some of the practitioner dilemma above, future doctoral-level research will build upon the Master’s thesis [3] in the form of an action research or an exploratory case study. Moving away from the elementary context, this upcoming research will focus on the secondary teaching panel, specifically in the grade 9 CF classroom in the Greater Toronto Area. At present time, the following research questions will guide the inquiry:

1. How do Ontario CF non-native French-speaker high school teachers begin to implement the new curriculum expectations for Grade 9?
   • How has their professional development shaped their curriculum implementation process?
   • How can these teachers continue in their curriculum implementation in subsequent years?
2. How do Ontario CF grade 9 students perceive the new curriculum expectations and overall teaching content?
   • What do students have to say about the overall teaching and learning French as a second language in high school?
   • How does the new curriculum influence their decision to pursue additional French-language opportunities post-grade 9?

The ‘ingredients’ for curriculum success will derive from many theoretical perspectives such as Cummins’ [11] work on the nested pedagogical orientations that will help explain the uniqueness of
each participant’s curriculum operationalization process.

Netten and Germain’s [10] neurolinguistics approach to second-language learning will also be implemented in the upcoming research study because it models first-language acquisition. Fluency in the target language begins with equal combinations of “implicit competence + explicit knowledge” (p. 90) that are often recycled throughout the semester. Additionally, they identify that oral proficiency is obtained through student exposure to small ‘chunks’ of input for a subconscious retention.

6.1. Participants and Recruitment Criteria

6.1.1 Ontario CF Grade 9 Teachers. The teachers will need to be teaching at least one section of the grade 9 CF program of either the applied or the academic stream from September 2018 to January 2019. Approximately five to ten teachers will take part in the study to allow for rich participant ‘portraits’. Ideally, to compare and contrast findings from the Master’s thesis [3] to the doctoral work, the high school teachers will share the following characteristics:
- They will not be francophone-speaking teachers;
- They will be teaching in the Greater Toronto Area; and
- They will be both newly-licensed and experienced FSL high school teachers.

The non-native French teacher-speaker will be the focus of the future doctoral research because personal experience acknowledges the dominance of this teacher-type in the CF program more than the francophone teacher. Additionally, assumptions can be made that the non-native teacher may encounter teaching the newly embedded intercultural curriculum component as potentially challenging; thus, researcher exploration could help ignite participant exchange of curriculum resources and other professional development opportunities.

6.1.2 Ontario CF Grade 9 Students. The students will need to be non-native French-speaking learners taking one of the following courses: FSF1D, FSF1P or FSF1O, from September 2018 to January 2019. No other specific student recruitment criteria will be reinforced as to allow for full exploration of how the curriculum is perceived by a broad cross section of all students.

7. Conclusion

This article sought to present the dynamic nature of curriculum as a concept and its specific implications for the non-native French-teacher speaker facing a paradigm shift of curriculum change in Ontario. It additionally sought to capture the lived experience of a teacher-researcher through previous work for a Master’s-level thesis and upcoming doctoral-level thesis. This is only the beginning of a necessary investigation into Ontario’s revitalized elementary and secondary FSL curricula and specifically of the beginner-level CF classroom.

8. References


A Socio-Cognitive Approach to Enhance Vocabulary Acquisition in ESL Learners

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Abstract

This abstract presents a review of literature which looks at to what extent translation from the second language (L2) to first language (L1) facilitates the encoding and retrieval of new vocabulary words in English as a Second Language (ESL) learners. Based on the literature, it can be concluded that the imposition of western pedagogical practices on ESL learners with no consideration for their culture and identity may have detrimental effects on their language learning success. Thus, it is suggested that the existing learner strategies based on the mainstream pedagogy for second language acquisition needs to be re-evaluated in order to maximize language learning success of ESL learners.

This review of literature explores to what extent translation from the second language (L2) to first language (L1) facilitates the encoding and retrieval of new vocabulary words in English as a Second Language (ESL) learners. Three theoretical frameworks will be foundational for this study: Craik and Lockhart’s [3] Levels of Processing Theory, which discusses three levels of processing information; Paivio and Desrochers’ [7] Bilingual Dual Coding Theory (BDCT), which elaborates how the cognitive activity of the bilingual mind is mediated and Gu and Johnson’s [4] taxonomy of VLS which includes translation as a vocabulary learning strategy.

Learning can hardly be considered a detached cognitive activity as it is shaped by an individual’s identity, experiences and relationships. For instance, according to Canagarajah, [2] the values represented in western pedagogical practices and the culture of the students on which these practises are imposed can create a dissonance with possible detrimental effects on the learning process. Thus, it is evident that the imposition of western pedagogical practices on ESL learners without considering the culture and identity of the learner is highly questionable. Thus, there is a need to re-evaluate the existing learner strategies based on the mainstream pedagogy for second language acquisition.

Translation is a cognitive activity closely related to elaboration [5]. It requires the learner to link a new word to its native language equivalent. Although translation from the L2 to L1 is discouraged in western pedagogical practices there is strong theoretical and empirical evidence in the psycholinguistic literature, which validates L1 as a potential pedagogical tool [5, 6]. Thus, there is a need to reconsider the use of translation to enhance ESL learner vocabulary.

Arabski [1] quoting Lado suggests that individuals are inclined to transfer the forms and meanings of their L1 and culture when attempting to receive and produce a second or a foreign language. This is mainly due to the fact that one’s knowledge of L1 and culture are intricately intertwined with one’s identity. Thus, it is preposterous to ignore this knowledge in L2 acquisition since previous knowledge play a pivotal role in learning.

In light of this, this literature review discusses the extent to which translation catalyzes the activation of connections in the two verbal systems at representation and referential levels leading to deep processing of new vocabulary items in ESL learners.
References


Voices of Secondary Emergent Bilinguals about Their Schooling Experience

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Abstract

Qualitative research offers opportunities to give voices to individuals or groups who have traditionally been underrepresented or marginalized. It can also be a means to uncover prevailing misconceptions that result from aggregated, quantitative profiles of groups of people. In this research study, I illustrate how qualitative approaches can be used to increase our understanding of educational, socio-cultural and linguistic realities experienced by low-achieving secondary emergent bilinguals, as known as long-term English language learners (ELLs), a group which has been under-studied by educational researchers in general and special education.

Emergent bilinguals in secondary school underperform on almost every measure of academic performance, and many of them do not complete high school. Furthermore, they are disproportionately represented in special education, particularly in the areas of specific learning disabilities and speech language impairments. In this study, secondary emergent bilinguals (long-term ELLs) are defined as students who have not achieved a fluent level in English proficiency determined by the state and federal education system with seven or more years of schooling in public schools in the United States. These secondary emergent bilinguals are most at risk of academic failure and in need for highly qualified instruction that meets their educational needs; however, they have received little attention from schools [4] [5]. In addition, to-date, very few studies have been conducted about the emergent bilinguals’ educational experiences from their perspectives.

The purpose of this research study is to: (a) understand secondary emergent bilinguals’ academic challenges via their voices on their schooling experiences, and (b) explore how their experiences of schooling are related to their academic performance. In particular, I examine emergent bilinguals’ schooling experiences with regard to what language programs and academic services they have been received over years of their schooling, what strategies do emergent bilinguals use when they face challenges, what issues concern them, and what sources might contribute to their perceptions and interpretation of their educational experiences. This information would be a fundamental source to understand why so many emergent bilinguals are not succeeding in classrooms of the nation’s secondary schools in spite of a significantly long period of schooling.

A qualitative research design based on the Naturalistic Inquiry paradigm [3] is employed to explore the perceptions of 21 low-achieving emergent bilinguals at a high school in South Texas about their language and academic learning experiences. Semi-structured interviews are the main sources of data; documents including assessment data and the participants’ academic records provide additional information about their history of schooling and academic performance. Data are analyzed using a constant comparative method of the grounded theory approach [1]. Preliminary emerging themes from the data analysis include: (a) inconsistency in language support, (b) critical need of language and academic support in middle years, (c) communication breakdowns.
between the school and ELLs’ families, and (d) developing self-supporting skills.

Few studies are available about secondary emergent bilinguals’ academic challenges, and their experiences have little been reported and discussed in literature [2]. By bringing these emergent bilinguals’ voices to current understanding of factors related to their educational underachievement, I create the possibility that educational reform efforts will be informed by the perspectives of the very students who are the targets of these reforms but frequently absent from the dialogue.

References


Session 14: Other Areas of Education

Title: Are Charter Schools the Second Coming of Enron?: An Examination of the Gatekeepers and Governmental Agencies That Guard Against the Dangers Posed by Related-Party Transactions
(Author: Preston Cary Green, III)

Title: The Effects of Flipped Classroom on the University Students' Self-Regulated Learning
(Author: Syh-Jong Jang)

Title: Socio-Demographic Factors that Influence Job Satisfaction among Academicians in Public Universities
(Authors: Oladipo Kolapo Sakiru, Ismi Arif Bin Ismail, Bahaman Abu Samah)
Are Charter Schools the Second Coming of Enron?: An Examination of the Gatekeepers and Governmental Agencies That Guard Against the Dangers Posed by Related-Party Transactions

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Abstract

This presentation discusses how some charter school officials in the United States are using related-party transactions to funnel money fraudulently into other business ventures. This presentation also explains how this behavior is similar to the Enron scandal. Further, this presentation identifies several measures that can be taken to strengthen the ability of charter school gatekeepers to protect against this danger.

1. Scope

In 2001, shareholders lost $63 billion when Enron declared bankruptcy. Enron had benefited from the deregulation of the United States’ energy markets. Special purpose entities (SPEs) were instrumental to Enron’s demise. Corporations create SPEs to fulfill specific purposes. Enron parked its bad assets in SPEs to improve its credit rating. Enron violated accounting principles by not revealing that its SPE partnerships were related-party transactions. Related-party transactions occur between parties that have pre-existing, special relationships. Andrew Fastow, who was also Enron’s CFO, made millions of dollars by managing the SPEs. He also used these illegal proceeds to invest in other ventures. Enron exposed the inability of gatekeepers to guard against accounting fraud. These gatekeepers included auditors, corporate boards, and the Securities and Exchange Commission (SEC).

Related-party transactions now pose a problem to charter schools in the United States. Charter schools are deregulated public schools that are exempt from many laws governing financial transparency. Similar to Enron, bad actors are using fraudulent related-party transactions to funnel money into real estate. They have also benefited from exorbitant management fees.

Despite this evidence, the federal government has consistently encouraged charter school growth but not oversight. This approach creates more opportunities for fraudulent related-party transactions. Government policy also runs the risk of harming students in low-income and minority communities – the very children whom charter schools are supposed to serve. Therefore, charter school gatekeepers must take appropriate steps to protect against fraudulent related-party transactions. These gatekeepers include at the state level, auditors, governing boards, authorizers, and at the federal level, the U.S. Department of Education.

This presentation discusses how some charter school officials have engaged in Enron-like, related-party transactions and why such illegal activities might become more widespread. This presentation also analyzes the steps that state and federal gatekeepers can take to reduce the likelihood of fraudulent related-party transactions in the charter school sector.

2. Objective and Motivation

My research has focused on the legal and policy issues experienced by charter schools in the United States. While charter schools are commonly defined as public schools, they are really hybrids that have both public and private characteristics. For instance, my co-authors and I have explained how charter schools have emphasized their public characteristics when it comes to eligibility for governmental funding. We have also discussed how charter schools have emphasized their public characteristics when it comes to eligibility for governmental funding. We have also discussed how charter schools argue that they are “private” in order to circumvent rules that they dislike, such as student discipline protections.

Recently, my research has focused on how charter schools might replicate the problems that have arisen in other privatization contexts. For instance, my co-authors and I have argued that charter school growth has similarities to the subprime mortgage crisis. This presentation, which compares charter school fraud to the Enron debacle, identifies another concern.

My research has international implications because charter schools and other market-based
reforms are becoming more popular across the world. It is imperative that other countries learn the lessons that can be gleaned from the charter school experience in the United States.

3. References


The Effects of Flipped Classroom on the University Students’ Self-Regulated Learning

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Abstract

The university is promoting the so-called four-creative campus: creativity, innovation, creation, and entrepreneurship. Teachers who have creativity may provide students with innovative teaching or teaching materials, instruct students to become creative so that they cultivate students’ entrepreneurial ability. In the new century, university teachers should keep pace with the times, learn how to “innovative teaching”, strive for excellence, and improve quality. Flipped learning has been in the spotlight in education for a few years although the concept also referred to as the inverted classroom, reversed instruction, or blended learning [1]. Students in a blended learning environment have the advantages of both face-to-face and online learning, such as personal interaction with the teacher and other students and the flexibility and variety of online content. At present, the researches have shown that promoting the change for the flipped classroom has a considerable effect; however, there are very few studies on how flipped classroom affects the self-regulated learning (SRL) of university students.

According to Paris and Paris [3], “Self-regulated learning as the three words imply, emphasizes autonomy and control by the individual who monitors, directs, and regulates actions towards goals of information acquisition, expanding expertise, and self-improvement”. In general, SRL is defined as “an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognitions, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment” [4]. Specifically, SRL is an active process referring to “self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals” [6]. Self-regulated learning involves a self-regulated process by which learners’ mental abilities are transformed into the skills needed for academic tasks and relates to learners’ motivation, cognition, and behaviors as well as to the social and physical environments where the students are located [7].

It is necessary to concentrate now on the interaction of the educational process participants as the roles of the teacher and students undergo significant changes in the flipped classroom. Firstly, in the flipped classroom, students have opportunities to control their own learning. They can study at their own pace due to availability and accessibility of all necessary resources in the e-learning environment [5]. Moreover, students can choose when and where to study within the time limit allocated for this or that task, they can review the material anytime they need it or get online assistance from the teacher or peers due to chats and forums.

Secondly, the flipped classroom technology encourages collaboration among students due to mutual projects and group work. Besides, students are engaged in peer-to-peer assessment, giving feedback to the works of their group mates according to the developed criteria. Collaborative projects make students cooperate, learn from each other and help each other.

Finally, the flipped classroom increases students’ responsibility for their own learning. They become more self-directed and motivated than in a traditional
classroom environment. Students have to learn to manage their time working
with the electronic course, developing self-study and autonomous learning skills.
In other words, students’ role in the learning process is changed, making them
active participants of the educational process [2].

The aim of this study is to explore flipped classroom how to promote
university students' SRL in two university courses. Moreover, this study spans an
18-week semester within the contexts. Multiple data were collected and
analyzed, including the pre-test and post-test SRL surveys, instructor interviews,
in-class observations, and students’ feedback and opinions. If students exhibit
better self-regulation, they might effectively explore and learn the learning
materials without being affected by other unrelated content. The flipped
classroom included out-of-class learning and in-class activities. The results
showed students’ out-of-class learning performance plays an important role in
the flipped classroom when students and teachers conduct their in-class activities. Hence, how students perform their self-regulation is regarded as a
critical issue in students’ flipped learning performance, and a mechanism for
couraging students to be self-regulated in learning is essential when
conducting flipped learning activities.

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Socio-Demographic Factors that Influence Job Satisfaction among Academicians in Public Universities

Oladipo Kolapo Sakiru, Ismi Arif Bin Ismail, Bahaman Abu Samah

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Abstract

Fundamental point in this study is to decide the relationship between demographic variables (age, sex and educational qualification) and academicians' job satisfaction in Nigeria public universities. Quantitative study is being used in this research, wherein a total of 199 academicians from Nigeria public universities studying in three research Malaysia universities are the data for this study. Simple random sampling method is being utilized to select the academicians in the universities. The outcomes uncovered that there was no significant difference between academicians' job satisfaction and the demographic variables tested in this study (age, educational qualifications and gender). It could be recommended that the academics in public universities in Nigeria should be compensated adequately, as well as opportunities and financial support should be given to secure higher educational qualifications. Further study, can be utilized to further improve the critical of demographic variable in job satisfaction of the academicians in Nigeria public universities.

1. Introduction

A fulfilled and upbeat staff is needed in the workforce of an association to have the capacity to accomplish her objectives and goals [28]. Essentially is the fact that for any university to take off and accomplish its vital objectives, it would firmly rely on upon her ability to pull in, hold and keep up able and fulfilled staff in its occupation. The universities being an establishment of higher learning that gives labor needs to propel national advancement through both the general population and private division must itself be equipped for guaranteeing sufficient labor arranging and improvement she could hence not bear to disregard need and the essentials of work-force fulfillment.

Lecturers are the heart of educational organizations in which all instructional procedure focuses on. They are key players in the training framework. They likewise assume basic parts in progressing economic and innovative advancement through teaching and educating human resources [3]. To accomplish instructive objectives, lecturers can outline and plan educational programs, perform instructing - learning exercises furthermore have cooperation in scholastics studies, are a part of academic and community service activities, preserve a high level of institutional standards and be active in strategies teaching – learning with students in the classroom.

Lecturers are relied upon to give proficient meetings, distribute their discoveries, and behavior scholastic examination, so that the group could advantage, gives addresses and be focused on the objectives, qualities, vision and mission of the tertiary foundations in Nigeria. To do this, lecturers needs to stay aware of new advances, new procedures and new information with a specific end goal to give the understudies the best [3]. It was demonstrated that the issues of staying longer and performing better occupation in the organization employees who are profoundly fulfilled better.

Numerous studies on components that influenced job satisfaction have been finished. Among the elements is occupation self-governance, working environment and leadership styles. Jafar, [14] comprehensively sorted the components into work and business related variables. Because of its significance, numerous exploration relating to job satisfaction in different professions have been done, for example, the construction, library, [14] and education [6]. There is a shortage of exploration on the subject enthusiasm for Nigeria, critically in connection to the demographic variable and academicians job satisfaction, subsequently, why this study is viewed as important as of this time.

Objectives of the Study - This study thus aims to investigate the relationship between the demographic variables and job satisfaction among academicians in Nigerian public universities. The specific objectives are to examine: (a) the differences between job satisfactions of the academicians based on gender, (b) the differences between job satisfactions of the academicians based on age, and (c) the differences between job satisfactions of the academicians based on educational level.

2. Background

2.1. Overview of job satisfaction

Job satisfaction seems, by all accounts, to be what most laborers ache for and work towards in their different tries. It is a key to corporate achievement and a subject of talk in work and
organizational writing. One of the routines used to build up and keep up a sound organizational structure is job satisfaction [1]. These days, it was believes that employees are vital resources in the organization, emphatically craving job satisfaction of their workers [30]. Non-appearance of job satisfaction fulfillment frequently prompts specialist’s dormancy and lessened employee’s duty.

A great part of the mind channel in large portions of the employee has been credited to employment disappointment. Minimal ponder then, while Olowokere, [25] emphasized that employment disappointment is an incredible indicator of stopping occupations. Adeyemo, [2] considered the general movement of employees from one occupation to the next for greener field because their present state of work has an aftereffect of poor state of administration. Diaz-Serrano & Cabral, [10] confirmed this declaration as they considered job satisfaction as number indicator of expectations of general individual prosperity and in addition indicator to leave an occupation [18].

Job satisfaction has been portrayed in different courses by distinctive researchers. It was seen as a satisfaction procured with experience of different occupation exercises and prizes, and it likewise said it is the inclination in regards to, or viable reactions to parts of the work circumstance, it was additionally upheld that job satisfaction is a singular's general state of mind of employee towards his or her employment, [32]

2.2. Demographics variables and job satisfaction (Gender, Age, Educational level)

Relationship between job satisfaction and demographic variables of employees in an educational sector, Paul & Phua [31] showed that while variables, for example, educational level and age affected the levels of job satisfaction, the variables: scholastic capability, sexual orientation, conjugal status, and length of job had no impact of measurable noteworthiness. Noordin & Jusoff [24] found that the demographic components, for example, present place of employment status, conjugal status, age and compensation seem to have huge effect on the respondents’ job satisfaction level.

In spite of the way that analysts have discovered various segments that relate to employee job satisfaction, all these four segments could be arranged into two general social affairs: (a) individual components, that concentrate on traits of individual and qualities and (b) biological variables, which need to do with components joined using the work itself or even the workplace. It was showed that the significance of demographic variables in recognizing the measure of job satisfaction along these lines view environment and private components as noticeably fighting models, Olowokere [25], Jafar, [14]. Fields [13] says that individual qualities, for example educational level, age, sex and don't lead incrementally to the change in work satisfaction that portrayed through the variables illuminating the errand situation. In like way, other scientist, like Ellickson & Logsdon [12] found that demographic variables were by and large poor pointers of employee job satisfaction.

As indicated by Mehboob, Sarwar, & Bhutto [20], female employees were more satisfied by their job than their male partners at the universities. Furthermore Castillo & Cano [4] found that contrasted with male employees, female lecturers were lesser fulfilled. Additionally, discoveries of Moguerou [22] likewise reasoned that female individuals are less fulfilled than male individuals. Syed et al. [37] found that female employees are more fulfilled contrasted and male employee. Crossman & Harris [8] reported that guys were marginally more fulfilled than females.

Gender and job satisfaction has been broadly looked into. Be that as it may, the outcomes have been blended. Females express lower levels of job satisfaction than males [35]. Spector [35] offered a few explanations behind this: (1) administrative/expert occupations are not liable to female, (2) they are more satisfied with less obligation and lower pay than men, and (3) they have lower assumptions about on the grounds that they contrast themselves or what they will get with other ladies who are in comparative circumstances. Be that as it may, a few studies reported no relationship at all in the middle of sex and general job satisfaction [28], [11]. The past perspective of men as the fundamental suppliers of family salary no more exists subsequent to the high average cost for basic items implies that men can never again be the main wellspring of monetary backing. As a result, it is imperative to inspect the relationship in the middle of gender and job satisfaction once again [28].

In any case, research discoveries have demonstrated that the job satisfaction of college employees from Uganda reported age to be a critical impact on showing satisfaction [37]. As indicated by DeVaney & Chen [9] more senior staff will probably be fulfilled than junior staff. So also Mello [21] recognized that job satisfaction increase with age.

Another customary individual segment that has been inspected is educational level. Undoubtedly, research take a gander at the relationship between the level of education and job satisfaction has shown unmistakable revelations. A couple of investigators found a positive relationship between educational level and job satisfaction while others perceived a negative affiliation. Distinctive studies have demonstrated for all intents and purposes zero relationship in the middle of educational level and job commitment. A couple of studies have reported
that associations between educational level and job commitment are sure, Okpara, (2004).

On the parts of employee job satisfaction or dissatisfaction the journey for an appreciation has been an advancing locale of excitement for managers and social researchers around the world for a great time. The employee job satisfaction speaks to a basic subject in an association and individual with interests stem from pros’ conviction [35]. Whether in a negative or positive way authorities in the field have assessed a couple of variables that relate with job satisfaction. Then again, the noteworthiness of the diverse variables seems to change from the beginning with one situation then onto the following. Performing the same occupation with the individuals in the same environment does not determine the same level of satisfaction. The multi-edge highlight of employee job satisfaction gets the opportunity to be seen when endeavoring to center the estimations of employee’s satisfaction. There is no uniform comprehension among researchers about the components that gives attention to job satisfaction, Regardless of the way the authorities in the field recognize the parts that impact the level of job satisfaction [35]. A bigger number of measurements have been distinguished [2], While a few studies in this field are restricted to only a couple of dimensions or elements.

3. Methodology

Based on the extant literature of Duong [13] and Ghafoor [16], a quantitative research approach is suggested and used in this study. The Minnesota satisfaction questionnaire (MSQ) created by Weiss & Dawis, [40] was utilized to gauge job satisfaction of lecturers. Simple random technique was used to select the respondents for the study. 217 questionnaires were administered manually to potential academics chosen from the universities, and 199 questionnaires were returned. The questionnaires yielded a response rate of 91.7%. Based on Dillman [11] and Malaney [23], a rate in between 30% to 60% is considered to be acceptable for analysis purposes in most research studies. Data was analyzed using SPSS.

4. Results

4.1. Objective No 1

Examine the differences between job satisfactions of the academicians based on gender.

The results reveal independent sample t-test on job satisfaction on gender among lecturers in Nigerian universities. Findings show that there was no significant difference in the job satisfaction level between male and female lecturers. (t (199) = .185, p > .05).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job</td>
<td>Male</td>
<td>192</td>
<td>3.7637</td>
<td>0.53938</td>
<td>1.329</td>
<td>.185</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>67</td>
<td>3.6660</td>
<td>0.37255</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean scores indicate that the job satisfaction level of male lecturers (M=3.7637, SD= 0.53938) and female lecturers (M= 3.6660, SD= 0.37255) are more or less the same. Therefore, the research fails to reject Ho, which says that there is no significant difference between job satisfaction among male and female lecturers in the Nigeria universities.

4.2. Objective No 2

Examine the difference between job satisfactions of the academicians based on age.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Qualification</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>F</th>
<th>Sig-t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job satisfaction</td>
<td>Bachelor</td>
<td>199</td>
<td>3.7844</td>
<td>0.41592</td>
<td>0.001</td>
<td>0.517</td>
</tr>
<tr>
<td></td>
<td>Masters</td>
<td>199</td>
<td>3.6897</td>
<td>0.46130</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph.D</td>
<td>199</td>
<td>3.7370</td>
<td>0.55418</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table displays the ANOVA results that show there is no significance difference between job satisfaction and educational qualification among the lecturers in Nigerian universities. The mean scores of bachelor, master and doctorate lecturer is as follows (M= 3.7844, M= 3.6897 and M= 3.7370 respectively) on their various job satisfaction in the university. The ANOVA test showed that there was no significant differences in the mean (sig-t > .05) for job satisfaction among bachelor, master and PhD lecturers (F (0.661), = 0.517 > .05). The findings show that academicians with bachelor, master and PhD show no significance difference in their job satisfaction.

4.3. Objective No 3

Examine the difference between job satisfactions of the academicians based on age.
were female lecturers in Nigerian universities. The clarification for this is men assume a key part in the work environment, while ladies assume a key part in their homes and their energy is not prevalent in the work environments.

Regarding age gather, the discoveries of this study demonstrate that there is no noteworthy contrast between the age group of the lecturers and job satisfaction. These discoveries were upheld by Okpara, [12]. Studies in view of the life cycles and work stages propose that determinants of job satisfaction change contingent upon the specific phase of the profession.

Another conceivable clarification is that older group has a greater degree of job satisfaction of their job. It can likewise be that lecturers who are in 51 years age or more have indicated more satisfaction, this was seen from the consequence of the Mean, which is M= 2.36, demonstrating the most astounding from the other age bunch. Another vital issue is that more youthful and older lecturer’s perspective to work and self fundamentally in distinctive ways. Accordingly the higher the lecturers age the lower the potential outcomes of leaving the universities.

For educational qualification, information demonstrated no huge contrasts among the three groups (bachelor, master and PhD) and lecturer’s job satisfaction. A few analysts discovered a positive relationship between educational qualification and job satisfaction while others distinguished a negative association. Different studies have demonstrated next to zero relationship in the educational level and job satisfaction. Then again, the discoveries of different studies have been that no huge relationship exists between job satisfaction and educational qualification, which bolster the present studies, for instance, [7] and [34] studies bolster this study. Taking everything into account, educational institution, for example, colleges and schools has teaching staffs that are fulfilled by their occupation. All together words the essentialness of every single educational institution lies in the ability of lecturers to add to the advancement of their associations [17]. In the event that lectures are fulfilled by their occupation, it will convey all round advancements to the universities in Nigeria [27].

6. Conclusion

This study was proposed to research the relationship between demographic variables and job satisfaction among academicians in Nigerian public universities. The essential concern was to investigate the relationship between chose academicians on their job satisfaction in connection to the demographic variable, which have not managed in former studies to the relationships an exact
and theoretical crevice in the organizational writing broadly and universally. In view of the discoveries, the accompanying conclusions have been drawn.

It was reasoned that there is no significant distinction between the age group of lecturers and their job satisfaction. It was found from the discoveries that the lecturers between the age bunches 36-40 yrs are most age group found in the universities, which demonstrates that more youth are being utilized in the educational settings in Nigeria. With the standards of catch them youthful. This shows lecturers within 36-40yrs had a slant to stay in their colleges than the other age bunch.

From the discoveries it was found that there was no huge relationship between educational qualification and job satisfaction. The study demonstrated that lecturers with master’s holders are more in the university than other degree holders, which shows that the minimum qualification for entering into a lecturing job in Nigeria universities is master’s holders. There was no gender wise significant difference regarding job satisfaction of the lecturers in Nigerian universities. While male lecturers had higher mean scores, which demonstrates that men are more process arranged and thinks more about how objectives are accomplished not just that they are accomplished.

This study gave the establishments to future exploration to expand the comprehension in the parts of demographic variables and academicians job satisfaction. Replication of this study with different samples of academicians from different regions and colleges in Nigeria to affirm the aftereffects of this study or recognize variables of job satisfaction are suggested.

The discoveries of this study, makes a vital commitment to our comprehension of academicians job satisfaction in tertiary institution. It is trusted that the outcomes will animate further research concerning other just as imperative angles influencing worker relations. This study was confined to one build of business related practices of job satisfaction, henceforth further research in the zone could stretch out to cover different develops which additionally identify with worker authoritative adequacy and results.

7. References


Session 15: Pedagogy

Title: Enhancing Pedagogical Practices through the Application of Simulated Person Methodology

Title: Body Practices and Different School Models: a Comparative Study between Brazilian and Portuguese Children
(Authors: Ivan Vilela Ferreira, Ingrid Dittrich Wiggers)

Title: Building Intercultural Competence in English Language Learners (ELLs): Practices and Materials of Cultural-Based Language Teaching
(Author: Randa Alahmadi)

Title: Tutors Support English Language Learners through Modeling
(Author: Sarah R. Edwards Moore)
Enhancing Pedagogical Practices through the Application of Simulated Person Methodology

York University, Canada

Abstract

An overwhelming unforeseen workplace events involve miscommunication as a root cause. In organizations and industries with a relatively high degree of risk, and particularly in health-care milieus, effective communication and interpersonal skills have been shown to achieve positive outcomes with fewer errors. Simulation and experiential education approaches, which have been shown to enhance application and transfer of knowledge and skills, have therefore been gaining popularity in higher education settings. The application of simulation supports the synthesis of knowledge and the development of insight, professional competence, communication skills, and confidence in practice, as it provides students an opportunity to develop competency in difficult interpersonal situations. One simulation based learning approach that is widely cited in scholarly literature is the use of the simulated person or SP—a person specially trained in simulation methodology to portray a specific realistic encounter at the workplace through live encounter in a consistent manner. Thus, they provide faculty and students opportunities to teach, practice, assess, and refine associated professional competence skills, including communication, interview and affective and psychomotor skills. Embedding this methodology reinforces the importance of engaging students with scenarios that provide realities and complexities of practice that often do not match the textbook portrayal and further contributes to their success in their transition to the workplace milieu. A three-day experiential workshop has been developed as part of a pilot project to educate educators how to work and effectively utilize SPs or simulators to enhance the pedagogical practices in the classroom and as pedagogical tools for teaching undergraduate learners. The workshop has provided educators with meaningful reflection on the practice of teaching with the ability to apply insight back to the achievement of student learning.
Body Practices and Different School Models: a Comparative study Between Brazilian and Portuguese Children

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Abstract

This study is part of a master’s degree research in Physical Education. It aimed to investigate the influence of the traditional and the progressivist school models on children’s body practices. Therefore, it was selected one brazilian and one portuguese school. This investigation is qualitative, thus it was used the participant observation and the children draws to reach our target. Basically, the children indicated three main elements that influence on how their plays: autonomy; physical space and social elements. Comparing the outcomes, the brazilian children surfer more with the lack of autonomy and with the low quality of their physical space. Lastly, the schools; that do not consider the children’s autonomy; tend to create a barrier on how the infants’ plays.

1. Introduction

The body practices are cultural phenomes; it is developed through the body and can be understood as a communication channel [2]. Specifically, the children’s body practices in schools might be translated as their plays and games.

By playing, the infants can exercise the power to take decisions, to express feelings and values, to know themselves and the others and to use their bodies, senses and movements [9]. Thereby, the plays and the games of children inserted in schools are one of the most significant elements in the body education.

Considering this perspective, the school and its different institutional models might influence on the children’s body practices. Regarding to the school institutional models, we consider that exists two types basically: the traditional school model and the progressivist school model. The traditional school model focuses on teachers’ interests, thus the children wishes are neglected during the educational process. In contrast, the progressivist schools tend to consider the children at the center of the educational process by hearing their voices and wishes.

Some studies illustrates that the traditional schools tends to deeply limit the children’s body practices [1]. However, the literature has shown poor in studies that compare the influences of different institutional models on children’s body practices. Therefore, considering this panorama, the aim of this study was to analyze, in a comparative way, the influences of a traditional school model and a progressivist school model.

2. Methodology and Methods

This qualitative research was based on the phenomenology theory. This theory considers that the world is built from the experience of individuals and their interactions and; from the constant dialogue between these elements; both become inexhaustible sources of information [6]. Thus, regarding the aim of this study, the participant observation occurred throughout the school routine in two schools with different institutional models during one month.

We selected one brazilian public school and one portuguese public school. The Brazilian school – situated in Brasilia – is called Escola Classe 407 Norte. This school was selected, because it has the traditional school model where children’s interests are neglected. Twenty-five brazilian children enrolled in fifth grade participated. They were between eight and eleven years old.

As the representative of the progressivist school model, we selected the Escola da Ponte, situated in Porto, Portugal. That school preserves the children and their concerns at the center of the educational process. Twenty-one portuguese children between six and fifteen years old participated. This wide range age of the children occurred, because in this school they are not divided by age, but by skills and developed knowledge.

Seeking to a deeper investigation, each child from both school were asked to draw their favorite play. The analysis of the drawings occurred by the oral report of each child. The oral report of the children contributes to understand their small concepts or the historical and social context [5].

Finally, all the information obtained through the participant observation and the drawings were divided in seven analysis categories. The most significant categories will be discussed forward: autonomy; physical space; social elements.
3. Results and Discussion

Seated for many hours, the routine of the traditional school is permeated by numerous orders - often followed by threats such as reducing playtime. Without an active voice in their own educational process, children’s yearn for autonomy once usurped by the teachers. This information is corroborated due the fact that 24% of Brazilian children justify their favorite playing, because through playing they have a greater autonomy and no one is giving them orders during this activity.

At the portuguese school, no children justified their favorite play based on autonomy. Regarding this outcome, we consider that the games played by the children can reflect the multiple pedagogies during their own body education. The body education demonstrates an idea of movement in the constitution of pedagogies directed to the body [8]. Nevertheless, we ponder that student's autonomy is one of the foundations of education. The respect for each student's autonomy is an ethical order and not a favor [4].

The influence of the physical space of the schools was also a relevant in students’ body practices. Reaching high temperatures and with a little space to circulate, the classroom in the brazilian school is a strong element that influence on children's play. About 16% of brazilian children justified their favorite play regarding the physical space. These answers cite the wide space and the number of trees where they play and also the lower temperature than in the classroom.

On the other hand, no portuguese children used the physical space as an indicator of their favorite plays. At the Portuguese school, the spaces are large, the classrooms have thermal control, the windows are also large and the students can walk between the classrooms to pick up books or any other materials they may need.

Comparing the difference between the physical spaces, the brazilian school seems to be in dissonance with studies about school architecture. The literature of this scientific field indicates that, among other factors, thermal comfort and contact with nature are elements that directly affect students' learning [7].

Another element that influenced on the students’ body practices was their necessity to be in touch with their peers. In both schools, the children indicated the importance of their colleagues meanwhile they play. Approximately 20% of the brazilian children answered their favorite play, because by playing they are beside their friends.

Despite their freedom to move between rooms and have more contact with friends of other levels, 47% of the portuguese children justified their favorite games based on the social elements. They justify, because by playing they can make new friends.

Both brazilian and portuguese children indicated the importance of the socialization promoted by plays and games. The socialization of the children in the context outside their families emerges as a process of informal education and through this process they transmit knowledge and experiences that tend to develop the social being [3].

4. Conclusion

Given the relevance of the body practices in children’s educational process, the aim of this study was to analyze and compare the influence of two different school models on children’s plays. Compared to the progressivist school model, the traditional school model and its lack of children’s autonomy, has a tendency to hamper on children’s plays. The physical environment was also an important factor on how children plays. In both schools, the children’s socialization has shown as an important factor. Finally, considering the limitations of this study, we indicate that further studies should be carried out, with other approaches to this theme.

5. References

Building Intercultural Competence in English Language Learners (ELLs): Practices and Materials of Cultural-Based Language Teaching

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Abstract

Because the world has become a global village, English is not only used by native speakers, but also by non-native speakers from culturally diverse backgrounds. Although learning a second/foreign language requires development of the four skills: reading, writing, listening, and speaking, there is also an intertwined relationship between language and culture, making it difficult to teach language without knowing the cultural context in which it is to be used. In the past decade, the number of international students enrolled in universities around the world has increased significantly. These students need to improve their cross-cultural communication skills and become culturally prepared to communicate successfully with people from other cultures.

This paper will focus on the importance of intercultural communicative competence and explain which culture should be taught: the target culture, the learners’ culture, or both. Moreover, practical and effective techniques that can be used in cultural-based language teaching will be explained.

1. Introduction

As a teacher of English as a Foreign Language (EFL) in Saudi Arabia, I truly believe in the intertwined relationship between language and culture. I also believe in the importance of Intercultural Communication Teaching (ICT). I noticed that my students back home were eager to know about the target language’s culture and they viewed it as an inseparable part of English language learning. Moreover, they were interested in comparing and contrasting between the local and the target culture. Therefore, I believe teachers need to develop their students’ communication skills and motivate them to interact with native speakers of the language for effective culture acquisition. Moreover, teachers should carefully choose textbooks, teaching materials, and teaching methods in order to influence their students’ experience in learning and acquiring a language effectively.

There are many reasons behind teaching intercultural communication courses. One of them is because it is challenging for people from culturally diverse backgrounds to communicate effectively with each other. The other reason is to help students understand the cultural differences between native languages and target languages [16].

English has become the language of global communication nowadays, and there is evidence showing that there are more non-native speakers of the English language than native speakers. Thus, teachers of the English language need to reconsider how to reflect the current status of English in their classrooms and what goals to accomplish. In this respect, teaching English as an International Language (EIL) should aim to develop the ICC of learners [9].

Studies in teaching EIL have suggested that an appropriate pedagogy should reflect both the local and global status of English. It is important to know that the communicative norms of native speakers are not enough to meet the needs of English Language Learners (ELLs) who will be using English for international communication. In this sense, the importance of ICC is unquestionable in the EIL pedagogy in the process of cultural exchange and sharing ideas with others [9].

Regarding culture teaching, the question is which culture has to be taught: the target culture, the learners’ culture, or both. Teachers’ focus should be equally divided between the target culture and the learners’ culture. This is important because appreciation of one’s own culture leads to appreciation of other cultures. Also, the learners’ culture cannot be neglected where English is locally spoken and too much emphasis on the target culture can be threatening to the learners’ L1 identity.

Culture that is represented in habits, beliefs, values, laws, and rules would be just observable realities and not cultural phenomena if separated from language. Also, the meanings that we give to food, places, and lifestyles are a big part of culture. In light of this, intercultural education and communication aim to increase dialogue and cooperation among members of different national cultures [7].

The theory of culture is always concerned with language acquisition and socialization into a group because identities, ideas, and thoughts are often expressed through language. According to the theory of culture, language is usually viewed as a complex system that reflects what meanings are linked to
In discussing ICC, it is important to understand its definition and learn about some empirical studies that have been done to explore its importance. According to Bennett [2], “intercultural competence is a set of cognitive, affective, and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts.” Another definition is “the ability of an interactant to choose among available communicative behaviors in order that he may successfully accomplish his own interpersonal goals during an encounter while maintaining the face and line of his fellow interactants within the constraints of the situation” [15].

2. Intercultural Communicative Competence of ELLs

Every culture has particular sociocultural and formal/informal rules of communication. Without knowing these rules, miscommunication and confusion occur. For example, when an American speaker asks, “What’s up?” or when a Chinese speaker asks, “Have you eaten?” it is a way to begin a conversation rather than expecting a particular answer or asking about what someone has eaten. Therefore, ELLs needs both linguistic and intercultural competence for effective communication [10].

Many studies have been conducted to investigate how ICC can be developed as part of foreign language teaching and learning. Some other studies also have been proposed to explain the importance of ICC. In a study that was conducted in the UK, the USA, and France, Young and Sachdev’s [17] main goal was to explore English language teachers’ beliefs and practices in the ICC. The study focused on the teachers’ application of Byram’s pedagogical model of ICC in their classes. It also focused on how those teachers actually think and what they do in respect to the teaching and learning of culture in language programs.

In each national location, the researchers used personal contacts to keep in touch with the teachers in the UK, the USA, and France directly through telephone, email, or via their schools. There were two stages of this study, and in both stages, teachers were pre-informed of the nature of ICC. Twenty one teachers took part in the first stage where they were invited to write diaries for a two-week period. The purpose of those diaries was to keep a record of in-class incidents that were considered to be bearing on the applicability of the ICC model. Then, the teachers were asked to participate in the focus groups that were held to elicit their responses to the focus questions. The focus questions were “What do experienced English teachers think of ICC?” and “To what extent is ICC prioritized on current EFL programs?” [17].

The second stage involved filling in questionnaires where more teachers were involved. The survey consisted of questions that were considered to be important in the focus group discussions. This stage investigated teachers’ attitudes and practices related to ICC in their work, which had been implied in the focus groups. Whenever emails and phones could not be used, the participants were contacted through their schools or meetings. In the focus groups, in both stages of the study, the teachers had to discuss whether the ICC was an aim in their work and how effectively they perceived it [17].

The analysis of the teachers’ responses revealed that most participants generally considered ICC to be appropriate and successful whenever it was used in class. However, teaching culture seemed to be neglected. Therefore, most participants were unwilling or unable to practice the ICC. They did not implement the ICC because they lack curricular support in testing, in books, and in their institutional syllabi. It was also perceived that the students lacked interest and motivation [17].

This study strongly supports the findings in the existing literature about the teachers’ values and beliefs of the ICC, as well as the difficulties in its practice. However, one would have expected more insights and actual research of the students’ perception as well as institutional values. In-class interaction examination would have increased the understanding of the ICC value and its practicability. The content of teachers’ diaries used in the study would have been better if they were aimed at drawing on actual class environment rather than reports of the class content; the lack of actual content analysis limited the study reported here. While an examination of in-class interaction was overlooked, an investigation of this may have revealed more about the nature of effective and ineffective communicative practices, and of associations between interpersonal, intercultural, and inter-discourse effectiveness.

In discussing ICT, it is not enough to learn about teachers’ perspectives and viewpoints, it is also important to learn about students’ points of view of cultural-based language learning. Schuetze [13] proposed a study to discuss intercultural communication and foreign language learning, particularly developing students’ ICC. The researcher conducted a study in the fall of 2004 and 2005 on an online intermediate-level second language course. It was set up between the University of British Columbia (UBC) in Canada and

behaviors and how they are expressed. Many language teaching methodologists and classroom teachers discussed the importance of teaching second language linguistic skills successfully through appropriate techniques for addressing cultural behaviors [5].

In a study that was conducted in the UK, the
the University of Kiel (UKiel) in Germany in order to assess students’ participation in the online exchange. The course’s instructors planned to use Byram’s pedagogical model of ICC.

The data came from 28 students who participated in the dialogue in 2004 and 24 students in 2005. They were asked to fill out a questionnaire about their backgrounds and language skills. Then, they were put into groups of two with one student from each university working with a student from the other university. After that, they were asked to write at least five messages for each given topic. The online exchange between UBC and UKiel was one of the course’s components and it occurred during the second six weeks of the 12-week semester. The course used WebCT, which is a content-based platform that allowed the instructors to observe the students’ dialogue without interfering. The content page had a number of files on it like short videos, pictures, audio recordings, and text from newspapers. Also, the content pages had various themes, topics, and materials. The course’s goal was to enhance the student-student learning through emails written by the second language learners [13].

At UBC, the second language was German and at UKiel, it was English. Therefore, both German and English languages were used. The instructors at UBC and UKiel designed the course material. The list of processing criteria used for students’ assessment was developed by the students and the instructors at UBC and UKiel before the beginning of the study. In 2004 and 2005, the instructors used this list to analyze the online exchange, and the students also used it as a guideline for their dialogues [13].

In the analysis, only five out of the 14 criteria used to analyze the dialogues were found to be related to the success rate in 2004, and four of those five criteria stood out in 2005. In general, the findings of 2004 were supported by the analysis in 2005. The use of wh-questions, personal experiences, and preferences was significant. The analysis pointed to the fact that students who shared personal experiences, asked wh-questions, gave examples, and found material that was not provided in the course participated in the online dialogue successfully. These students are on their way to developing ICC because participating in the learning process by engaging with another culture is one of the categories of ICC [13].

This study supports the findings in the existing literature on the effectiveness of applying ICC in language learning. However, the study was not long enough and the online exchange was limited to the usage of the writing skill only. Therefore, it would have been helpful if the study was conducted for a whole semester and the instructors considered involving other skills, like speaking, rather than focusing on the writing skill only. Furthermore, if the students had been given a chance to suggest topics of their preference in dialogues, they would have been more engaged and more interested in communicating with people from different cultures. Also, the students would have been more motivated if they were given constant feedback during the online exchange.

Although educators still debate on formal teaching of intercultural competence, many studies show that exposure to foreign cultures plays an important role in developing the skill of intercultural competence. Communication is not limited to face-to-face interactions. Nowadays, people communicate with others within and across their cultural boundaries via television, telephone, Internet, social media, etc. [15]. Therefore, ICC has become a way to live in harmony with others and overcome global and local differences [2].

In China, many universities have started to teach intercultural communication courses due to the increasing awareness of the importance of ICC. The trend for teaching intercultural courses is determined by many factors. It is challenging for people from different cultural backgrounds to communicate effectively with each other. Also, societies are moving towards greater interconnectedness. Moreover, university students are asked to show awareness of both the target and the learners’ cultures. This instills in them the value of diversity of languages and cultures.

In a study that was carried out in China, Ying and Ying [16] conducted an empirical research on ICT for undergraduate English majors from six universities in the Yunnan province in southwest China. The purpose of the study was to investigate the situation of ICT. It also focused on students’ perception of intercultural communication courses, students’ expectations of teachers, and ways to improve the course.

The data were collected by administering questionnaires to English major students and conducting semi-structured interviews with four teachers of the course. The students responded to questions on the teaching methods commonly used and how effective they found them. The students further stated their purpose of taking the course along with their expectations and suggested improvements. Out of the 849-questionnaire copies distributed, only 725 copies were found valid out of the 756 returned. The interviews with teachers served to give insights into the teachers’ perception of the course, their teaching methods, and their comments on what aspects of the class that students found difficult [16].

From the analysis of the data, lecturing was found to be the most commonly used teaching method, but was not perceived to be effective from the students’ point of view. Role-play and fieldwork were less commonly used, but they received positive perception from the students. Most of the
respondents wished to learn more about other countries’ cultures and expected the teachers to have rich cultural knowledge. The students stated that one of their learning purposes in the intercultural course was to have better communication with people from culturally different backgrounds. The textbooks used were found to be not completely relevant to the course. The teachers who were interviewed agreed that deeper cultural knowledge is essential for quality teaching. Experience in overseas countries also empowered the teachers. From the suggestions of the students, the teaching materials needed to be target oriented and systematic as well [16].

This study supports the findings in the existing literature on the importance of ICC. However, the use of closed survey questions limited the learners in their reasoning, which led to bias. In this sense, open-ended survey questions would have provided more details about the situation of the ICT and ways to improve the course. Moreover, it is important for teachers and researchers to collaborate to develop ICT methods and improve students’ competence in intercultural communication. They also need to provide the students with better textbooks that will remain relevant in this fast-changing world. Ultimately, teachers should help and motivate their students to improve their ICC and develop appropriate cultural attitudes. This would help students meet the demand of the globalized world.

The three studies discussed in the literature review show evidence that students can develop their knowledge of intercultural communication by orienting themselves to the world beyond the classroom and by learning from each other’s experiences and perspectives. Also, these studies show that teachers need to choose effective teaching methods in their intercultural courses to develop their students’ ICC.

Recently, intercultural competence has become a survival skill for people who need not only to work and live with others from different cultures and backgrounds, but also to communicate harmoniously with those having different values, beliefs, and viewpoints [15]. Using English as the language of global communication emphasizes the need for an understanding of cultural contexts and communicative practices in order to communicate across different cultures successfully. Knowing the lexicon, grammar, and phonology of a language is not enough for successful communicative competence; it is very important to understand the sociocultural context in which communication takes place [1].

3. Practices and Materials of Cultural-Based Language Teaching

Teachers might not find textbooks that teach both language and culture. However, they can expose their students to the target language’s culture by using authentic materials such as newspapers, magazines, articles, advertisements, pictures, songs, videos, etc. that are written or made for native speakers. This will help the students learn words and phrases that native speakers use in their daily life and enable them to communicate successfully with speakers of other cultures.

Bringing guest speakers into the classroom has tremendous benefits. Those guests can be either native speakers who belong to the target culture or non-native speakers who know a lot about that culture. One of the greatest benefits of inviting guest speakers to class is that it encourages students to accept learning from other people’s experiences and perspectives in order to develop their intercultural communication knowledge. A second benefit is that students learn lessons without having to experience the situations for themselves. A third benefit is that it is fun and it livens up the class.

Teachers always need to involve their students in the learning process and in setting goals for the course. Teaching involves knowing students’ cultural and educational backgrounds and designing appropriate lesson plans and activities for their needs. Moreover, ESL/EFL teachers should always encourage their students to compare and contrast the target culture with their own cultures whenever possible. This is important because learners who are culturally prepared almost always communicate more successfully with native speakers.

Effective learning cannot be perceived through lecturing. Creative teaching methods such as role-play games, task-based activities, or group projects can be used to prepare students to cooperate internationally with people of other cultures. Various topics and scenarios can be used for these teaching methods. Choosing topics that meet students’ interests would ensure the development of the students’ self-awareness, creativity, and language skills. Role-play games enable students to gain better understanding of the experience of people from diverse cultures. Moreover, role-play games can be aimed at preparing students to deal with challenging or unexpected daily-life issues while, for example, “working as a global manager and being a part of an international team” [11].

Task-based activities can be as innovative as role-play games. When teachers put their students into groups and ask them to work on a task, they help improve their students’ thinking and communication skills. Also, in task-based activities, students learn more than what they get from lecturing. Students in these tasks are motivated, energetic, and interactive. Moreover, as students work in pairs or groups, they have a chance to practice their language skills freely and learn from interacting with their teacher and classmates [16].
Group projects play a great role in enhancing students’ intercultural communication, developing students’ academic competencies as well as their learning skills, including critical thinking and problem solving. In these projects, the students can be encouraged to use the knowledge and skills gained in class to resolve practical problems that they encountered or might encounter in intercultural interactions outside the classroom. This will enable the students to familiarize themselves with the world beyond the classroom, learn from each other’s experiences and perspectives, and prepare themselves to deal with opportunities and challenges that they might encounter when interacting with people from different cultural backgrounds.

4. Conclusion

Learning a foreign/second language is not solely studying its grammar and memorizing its vocabulary, but also viewing it as “a language of world citizenship for learning about our global village” [10]. Recently, an increasing number of studies have been done on intercultural communication and foreign language teaching, particularly on developing ICC. These studies find that within the educational field, language learning is the best place for the learning of and about culture. This is especially true regarding the strong connection between language and culture [17]. Thus, in discussing ICT, it is important to understand what effective techniques can be developed and how these techniques can be applied to cultural-based language teaching. Through well-designed classroom activities that mimic real-world communication, students can fully understand the nuances of culture that may not be present in textbooks [10]. Moreover, it is important to know what materials, practices, and teaching methods ESL or EFL teachers use in their intercultural classes, what students expect to learn in these classes, and if learning culture along with a foreign/second language would give them the confidence to interact and express their ideas clearly in other cultures.

Because there are no perfect textbooks for teaching both language and culture, teachers need to develop classroom activities to make culture an inseparable part of their students’ language learning experiences. These activities should reflect real language use in hypothetical cultural settings. Also, these activities should be aimed at improving students’ speaking skills, raising their awareness of the importance of intercultural competence, and making them interested in foreign cultures [10].

When designing intercultural activities, teachers need to choose topics their students are interested in such as traveling, food, hobbies, etc. To make sure these activities are effective, they have to focus on spoken communicative interactions and include realistic language knowledge such as phrases and expressions that are used commonly. Also, these activities have to be assessed easily and be completed in a reasonable amount of classroom time. All these characteristics are essential for any intercultural task that is aimed at broadening students’ intercultural knowledge [10].

Language expresses, embodies, and symbolizes cultural reality [6]. Cultural awareness became an important part of conceptualizing the cultural aspect of language teaching [1]. However, foreign language students have different opinions about the cultural component of foreign language learning. Some students think that too much emphasis on target culture can be threatening to their L1 identity. They also think that values and culture should not be taught in a language classroom. Nevertheless, these students recognize that it is important for immigrants to learn the culture along with the language of their host country and the majority of foreign language students are eager to learn a language accurately. They believe this will give them a chance to know more about a culture they respect and a lifestyle they hope to experience [7].

5. References


Tutors Support English Language Learners through Modeling

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Abstract

There is a significant number of adolescent English Language Learners (ELLs) who are struggling in school. Tutoring Programs are being implemented to help ELLs. This case study examines a practice tutors used when working with adolescent English Language Learners (ELLs) in one-on-one sessions. The practice used, modeling, proved to effectively support academic progress within the session. The research work contributes significantly to the work of tutors and educators who work with struggling ELLs.

1. Introduction

The United States Department of Education reported in 2010-2011 that nearly half the states graduated less than 60% of students with a limited proficiency in English. Pennsylvania, the site of my study, has an ELL graduation rate of 63% compared with Vermont and South Dakota that have the highest graduation rate, at 82%. Arizona has the lowest graduation rate, at 25%. In light of this report, it is not surprising that ELLs accounted for the highest population of high school dropouts in United States public schools [1]. The U.S. Census Bureau [1] reported that the highest percentage (13%) of ELL students who drop out of high school are Hispanic students. The National Center for Education Statistics [2] noted that 51% of Hispanic identified high school dropouts reported having difficulty speaking English, compared to 18% who reported speaking English well. August [3] further concluded after conducting an extensive literacy review on secondary ELLs that “[s]uccessful completion of high school is associated with the ability to speak English” (p. 24).

2. Literature Review

One of the several strategies that is being used to support adolescent English Language Learners is the implementation of tutoring programs. With the high school dropout rate increasing, it is important to conduct preventive interventions with student populations who are at risk of not only failing in school, but continuing to have difficulties as a result of school failure. Dynarski and Gleason [4] reviewed programs that reduced the rate of high school dropouts and identified that the successful programs that helped to reduce the dropout rate were done with middle school students and younger students. The programs that were successful focused on specific students and had targeted goals. Even with the above findings reporting that schools see great promise in tutoring programs for middle school students, there has been little research that tutoring programs work beyond the early grades.

There is almost no research available on the effectiveness of tutoring programs with high school students. This is concerning considering that Joftus and Maddox-Dolan [5] reported that in the U.S., roughly six million secondary students read below grade level and 3,000 students drop out of high school every day. The secondary years provide the last chance for many students to succeed in their demanding courses [5], [6].

As stated above, little research has been done on the effectiveness of tutoring programs but due to accountability standards set by legislation like No Child Left Behind (NCLB), programs that are focused on reading instruction for middle and high schools are being more widely implemented [7]. It would benefit ELLs if more studies looked at how tutoring sessions are currently being structured for ELLs and what factors contribute to their academic success. This study investigated a practice that three tutors used in their work with adolescent ELLs in one-on-one tutoring sessions which contributed to academic success. The following research question guided the study:

1. Are there any specific practices that volunteer tutors in one-on-one tutoring sessions with at-risk adolescent ELLs use to encourage academic success?
3. Methods and Methodologies

The site for this study was an urban charter school, located in the state of Pennsylvania. Pennsylvania public schools currently serve 42,542 ELLs that speak 175 different languages. Spanish is the most frequently spoken first language (L1) among the ELL population. Every school district and charter school is required under Title 22, Chapter 4, Section 4.26 of the Curriculum Regulations to provide a program for every ELL student. In order to comply, school districts must provide ELL students with a planned program of instruction that is appropriate to the student’s development and instructional level. The charter school campus that was selected used the service of volunteer tutors as part of its documented program of support to help ELLs. I chose this site because currently, 19% of the school’s population is comprised of ELL students and they were instituting a one-on-one volunteer tutoring program for seven weeks in order to help their ELL population. The charter school campus included a middle school, high school, and Cyber School.

The purposeful sample for this case study included three volunteer tutors and 34 at-risk secondary ELLs who identify themselves as Hispanic. The tutors were given pseudonyms and are called Hannah, Pete, and Molly throughout the study. All three of the tutors were enrolled in a pre-service education program at an urban university in Pennsylvania.

This section details the data collection methods this case study employed. The main source of data was observations followed by interviews and tutoring reflection logs. Interviews were conducted with each tutor. The tutors were interviewed before the study began and after the study concluded. The tutors also filled out reflection logs after each tutoring session. Tutors were observed over a 7-week time period and each tutor was observed conducting 20 sessions.

The data collected was analyzed using open coding. Modeling was the open code that emerged as the practice tutors used within sessions that helped students progress academically. The modeling code was applied across the observational, interview, and tutoring reflection log data. Trends were noted and will be reported in the results section.

4. Analysis of Findings

The results of this study indicated that one key practice, modeling, was used by tutors in sessions which influenced academic progress. Below the modeling practice is described using examples from the interviews, observations, and tutoring reflection logs. As stated in the Methods section, the three tutors are referred to as Molly, Hannah, and Pete.

The tutors interacted with students using modeling in one-on-one sessions. Modeling is being defined as the tutors first showing the students how to do something in the session or the tutors would show the students how to think about something before they would ask the students to independently practice a skill. Modeling was identified by all of the tutors in their final interviews as a tool they all recognized they used in sessions. Molly referred to modeling when she talked about helping one student understand the mathematical concept of intercepts.

Although modeling was used in many ways, there is one key way that each of the tutors demonstrated modeling throughout their sessions: they would model for students how to go about answering questions in order to demonstrate comprehension in reading and math on multiple choice assessments. Below, examples of how each tutor modeled answering comprehension questions in sessions are shared.

4.1. Molly

Several of the students Molly worked with would come to her tutoring sessions in hopes of preparing for an exam they had coming up. Throughout these sessions, Molly would choose to model for how to find an answer or navigate an exam. For example, during a session where Molly was helping a student with prepping for the SAT exam, Molly modeled for the student how to go through each answer choice to pick an answer. Molly would look at the passage and then look back at the answer. During this process, she would explain to the student what she was doing in order to decide what answer she would go with (Observation, 12-1-2015).

In the reflection log that Molly filled out at the end of the session, she referred to how modeling how to navigate the reading passages seemed to support the session. Molly wrote, “This session was
challenging to the student and a little frustrating. The student is nervous for the test, especially if it is all in English. When I would model reading the passages and explain them, the student understood a lot better" (Reflection Log, 12-1-2015).

4.2. Hannah

Like Molly, Hannah would have several students come to her sessions in order to work with content that was helping them get prepared for taking an upcoming standardized test. The students would typically bring a reading passage that had comprehension questions attached to it and would ask Hannah to help them figure out how to complete the questions associated with the reading. During these sessions, Hannah would use modeling in order to demonstrate for the student how to read a text in order to find information. Below is an example of how her method of modeling would happen in a session.

Hannah was helping a student understand an article about the man who invented Hoover Vacuums. The article was in interview format and the student told Hannah that he needed to answer the questions that were at the end of the article. Hannah made a decision to model how to accomplish the task. She first modeled reading over the questions and then went back to the beginning of the article and read it out loud after asking the student if he wanted to listen to her read or read the article on his own. When reading the article, Hannah would stop to enunciate, track, and think aloud about how what she was reading might fit into one of the questions being asked at the end of the reading. Hannah modeled how to read for information on two of the questions and then asked the student to use the strategy in order to answer the remaining three questions. The student practiced what Hannah had just modeled and she would reiterate any modeling techniques that the student did not remember as they worked to complete the article (Observation, 11-10-2015).

In her reflection log Hannah felt that the session went well due to the modeling method she used. Hannah writes, “The session went better than my first session which makes me super happy because I did not think he got much out of the first session we had together. Today, we did a different method where I would model reading to him and summarizing before having him try it” (Reflection Log, 11-10-2014).

4.3. Pete

Unlike Molly and Hannah, Pete would model how to answer math comprehension questions rather than reading comprehension questions for students. Many of Pete’s sessions involved working with students at the Cyber School on a variety of Math skills. Students would come to a session with Pete and need help working through an end of a lesson assessment. The assessments would typically have a Math problem and four possible answer choices from which the student would pick the best answer choice. Below is an example of how Pete chose to model how to work through a Math question in order to answer assessment questions.

Pete was working with a student at the Cyber School on a lesson assessment based on geometric angles. The computer lesson would present a question and four possible answer choices. The student started out guessing what answer may be right. Pete chose to model working out the problem in his notebook first in order to avoid a guessing game and instead modeled the process of finding the answer in his notebook first and then went back to the computer screen to see if it matched with any choices. After a few questions were modeled in this way the student started to write the problem down first, work it out, and then see if their answer matched any of the computer screen options (Observation, 11-14-2014).

In Pete’s reflection log of the session, he said “This was the second time I have worked with this student and he rushes through problems and has a hard time staying on task. I wanted him to stay on task and explain the concepts behind each procedure of his math problem” (Reflection Log, 11-14-2014). Even though Pete did not call it modeling, it is apparent based on the actions Pete took during the session that he used a modeling technique to help the student think more about the procedures of math and not rush to answer problems on the assessment.

5. Discussion

There are differences in how the tutors would model. Molly was working with a higher level ELL student and she chose to model how to dissect the questions but did not concentrate on modeling how to read the text. Hannah, who was working with a lower level ELL, chose to model how to read the text, questions, and how to find the answers using the text. It appears that the tutors decided their level of modeling based upon the level of language proficiency the students had. Pete’s modeling demonstrated for students how they could check to make sure the answer they were going to pick for the math question was right. He was not modeling how to figure out what the question was or what it was asking like Hannah and Molly. Pete was modeling how to find the right answer by creating a problem based on the question being asked which required the student having background knowledge. By modeling,
the tutors were providing a cognitive support to help students learn.

Having background knowledge was an embedded requirement in all of the tutor’s modeling techniques. Hannah modeled how you had to use the background of a text to answer a question. Molly modeled how you had to have a background understanding of how questions were worded in order to be able to pick the right answers. Pete modeled how you could figure out the right answer to a Math multiple choice question if you were able to create a problem out of the question being asked which required background knowledge. In this way, all of the tutors were using different modeling techniques but they were also demonstrating the importance of having background knowledge. By modeling how background knowledge is used to answer comprehension questions the tutors were demonstrating one of the aspects of the Sheltered Instruction Observation Protocol (SIOP) model [8]. The positive connection between how having background knowledge increases academic performance and reading comprehension has been documented in the reviewed literature [9], [10] and the tutors were modeling in their interactions how background knowledge supports learning outcomes.

6. Conclusion

Each of the tutors would model for students and they were all aware of modeling. Their awareness may have come from the fact that all of the tutors were enrolled in their third year of a pre-service educational program that discussed modeling as a pedagogical tool of good teaching. The fact that they all modeled how to answer multiple choice questions is interesting considering the high stakes testing culture that teachers and students face in public schools. Many of the materials that the students would bring to a session would be in a test taking format. Math problems and reading passages had multiple choice questions with them and the students would be asked to write written responses in a brief constructed response format. One mainstream teacher at the school who sent students regularly to tutoring shared that they all knew how to answer multiple choice questions is interesting considering the high stakes testing culture that teachers and students face in public schools. Many of the materials that the students would bring to a session would be in a test taking format. Math problems and reading passages had multiple choice questions with them and the students would be asked to write written responses in a brief constructed response format. One mainstream teacher at the school who sent students regularly to tutoring shared that they all knew how to answer multiple choice questions.

The tutors were not told to help their students learn how to take test well. The tutors were told to help students with the material they brought to a session. Additionally, the ability of tutors modeling how to answer multiple choice questions did not come from training they received to become a tutor. This understanding of how to model test taking strategies came from their own experience taking tests in their own educational journey. The tutoring coordinator commented:

The seminar class that we pulled high school ELLs from for tutoring was geared toward helping our students with the state assessments and that class happens all year. We know that the test is an artificial barrier to entry into different academic worlds and opportunities but we also know we need to give our students these skills. We can’t ignore that they need to know how to take a test. The mainstream teacher that we worked with to get students is the head of the English department. The seminar teachers get overwhelmed and tutors gave a chance for individualized instruction (Interview, 1-7-2015).

The fact that the sessions reflected modeling in regards to helping ELL learners learn how to take test can be connected to literature that found ELLs currently score 20 to 50 percentage points below L1 learners on standardized tests [1], [11]. In the current culture of standardized testing, the school site was trying to prepare their ELL learners to perform better on the test and this translated into the everyday course material they were interacting with in their content classes.

The implications of this study for educators that work with English Language Learners is that they should make sure they are taking the time to model information and strategies for the students that they are supporting through tutoring. The results of this study also call for more studies to be conducted on how tutors are supporting adolescent ELLs in order to help educators in the field understand what practices are working.

7. References


Session 16: Curriculum, Research and Development

Title: A Thematic Analysis of the Implementation, Outcomes, and Barriers of Undergraduate Research and Inquiry Programs
(Authors: A. Goshua, M. Sun, T. Chen, S. Lin, C. Lu, S. Ge, I. Aditya, A. Nidumolu)

Title: Investigating Infants’ Brainstem Development through Lullabies and Music: A W.I.P. Pilot Study
(Author: Efthymios Papatzikis)

Title: Student Teachers’ Views on Their Curriculum and Training as Emerging Mathematics Teachers: Evidence from a South African Comprehensive Public University
(Author: J.K. Alex)

Title: Conflict in Multicultural Group Learning
(Authors: Mohd Hafizan Hashim, Michael L. Hoover)
A Thematic Analysis of the Implementation, Outcomes, and Barriers of Undergraduate Research and Inquiry Programs

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Abstract

Background: Undergraduate research and inquiry (URI) is commonly defined as the process through which undergraduate students produce original creative or intellectual insights into a specific discipline. The objective of the study is to conduct a thematic analysis synthesizing the existing body of knowledge on the ways in which URI is implemented, and its benefits and harms.

Methodology: 2522 studies were identified through the PsycINFO, Google Scholar, ASSIA, and ERIC databases, and 164 studies that examined URI implementation models and related outcomes and barriers were included. All articles were reviewed in duplicate. A meta-analysis was foregone given the heterogeneity of study designs.

Results: Three main models of implementation were identified, ranging from faculty-driven to entirely student-directed: guided, structured, and self-directed. All forms of URI promoted the development of research techniques, interpersonal and analytical skills, and meaningful relationships between undergraduate students and faculty. Self-directed URI programs in particular fostered creativity and resourcefulness. The majority of student research yielded a poster from their work and some gave conference presentations and published manuscripts, indicating that undergraduate students are able to be highly productive researchers. Student participation and faculty availability were among the most commonly cited barriers to URI.

Conclusions: Vastly diverse modes of URI implementation have been successful in promoting personal and professional skill development with few barriers. URI is rapidly becoming an important pillar of innovative education and it will be important for administrators to use evidence to determine how best to incorporate URI at their institutions.
Investigating Infants’ Brainstem Development through Lullabies and Music: a W.I.P. Pilot Study

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Abstract

Research has shown that Music is very important for children’s development, having an impact from a very early age. There is a variety of psychological research evidence suggesting that infants when actively take part in music classes, they widen their positive social trajectory and follow an earlier enculturation development. They better exploit the ‘music properties’ (i.e. tempo, timbre, rhythm) which are intrinsic to communication between them and their parents, while they also enhance their communication skills in both linguistic and functional societal terms. Biological evidence suggests that they put very early at work their already specialised for music processing brain while enhancing and specializing even more their neuronal circuitry. Nevertheless, early years research rarely refers to subcortical structures, thus missing a fundamental scope and angle of this valuable knowledge. This paper proposes a protocol on that specific subject of the early years subcortical development, explaining why and how such an inquiry should and can be investigated with the help of music.

1. Introduction

Around the globe, we all the more see the intentional usage of music and sound to increasingly expand as a ‘tool’ of biopsychological intervention in the context of the prenatal and postnatal (perinatal) health care [1-11]. The fact that music and sound engagement perinatally has been proved to provide an element of positive socio-psychological and learning development [12-16] strengthens the aforementioned trend.

Following the neuroscience research path, investigations focusing on the early years of life have clearly shown that there are functional specialisations for music and sound processing in the human brain (for example [17]; see also example of rhythm in [18]). It has been more specifically suggested that early music training and involvement may be responsible for superior development of prelinguistic communicative gestures and social behavior [19] while early exposure to music in children as young as 4 years, has clearly shown to enhance the P2 auditory evoked brain potential (reflecting the post-synaptic activity of a specific neural process measured through EEG, peaking at about 200 milliseconds after the onset of an external stimulus) compared to children who were not exposed to music (see Figure 1).

Especially for the auditory system, which mostly matures during the first 6 months after birth [21], early music involvement is crucial. The cochlea and the auditory cortex in the temporal lobe are both affected early by the environment and care practices, thus making this first period of life the most critical time for the development of the neurosensory paths of the auditory apparatus [22]. For foetuses, infants and toddlers, early sound and music engagement (formal or informal alike, either occurring through sound/musical interactions between newborns and caregivers, or through the passive sound/music perception that foetuses experience in the womb) is crucial for their later cognitive development [19, 20, 23 - 25].

2. Early brainstem development and sound perception

The impact of sound and music extends through our acoustical apparatuses (ears) and body to the whole brain, activating many of the latter’s regions [26]. One of these regions being involved in
music/sound perception, analysis and decoding processes, especially in the early instances of development, is this one of the brainstem including both the hindbrain and midbrain encephalic parts [27, 28].

The brainstem starts structurally at the top of the spinal cord and is the most highly developed area of the baby’s brain at birth. The brainstem is responsible for the most vital bodily functions including breathing, heartbeat, circulation, sucking and swallowing. Apart from these functions, it is crucially involved in sound perception as it accommodates the central auditory pathways, which extend from the cochlear nucleus to the auditory cortex. These auditory pathways are made to preprocess certain sound and music related qualities and characteristics like sound localisation and binaural interaction.

The inherent to the brainstem auditory pathways reach the midbrain and the auditory cortex through three main routes: the dorsal acoustic stria, the intermediate acoustic stria and the trapezoid body [29]. The brainstem auditory pathways are responsible for “the development of the tonotopic columns in the auditory cortex, [which]...are needed to receive, recognise and react to language, music and meaningful environmental sounds” [22: 188].

Although the auditory system becomes fully functional at around 25 to 29 weeks gestational age, evidence has been found for an auditory evoked response at 16 weeks gestational age where the synapses of the VIII cranial nerve have been mostly functional [22, 30]. This is also when the development of the auditory system starts to get vulnerable to epigenetic processes, meaning that both endogenous (stimulation dependent) and exogenous (activity dependent) to the foetus’s brain and in utero sound factors and elements may alter its structure and function. The auditory system development process critically extends until the 5-6 month of age, although it never stops up to the end of life [22].

3. Problem Statement

It is already established that the brainstem is one of these important brain systems - sound-wise - hugely developing during the perinatal period. However, not much - to almost none - research has directly addressed this possible correlation that may exist between music education and its neuronal growth; in function and structure. How is this specific part of the subcortical brain region influenced from this non-invasive yet very powerful neuroplastic force that music imposes on the neuronal circuits of the specific brain structure?

Considering that the very first perinatal months of development are the most sensitive in epigenetic changes - that is, the changes that the environment induces to our biological and cognitive mechanisms - it is crucial for research to provide solid evidence on the neuroanatomical and neurofunctional developmental changes of the brainstem as they occur through early sound and music exposure, especially when knowing that the latter are both closely connected and deeply embedded in our everyday lives from the very beginning.

4. Importance of specific research and aims

While the early development of other brain functions (e.g. cortical visual function) have been thoroughly studied, “much less information is available on [early] auditory processing” [31]. Therefore, we do not really know how its maturation process affect the adult brain function and the whole life-span education and disorders [22].

Early auditory processing and structure alteration research evidence at the level of the brainstem, emanating from life-related music education exposure protocols, could provide valuable diagnostic information, introducing a new, or improving the already adjunct to this subcortical brain system clinical and educational applications (e.g. early fitting of hearing implants and quality of life; introduction and improvement of early intervention tools related to dyslexia etc.).

Wanting to provide a basic understanding on how music impacts the brain (stem) development in the perinatal period, this project aims to collect postnatal data from a sample of 150 babies answering the following research question: Is there a direct correlation between music and the infants’ brainstem development when functionally measured in the first three weeks post delivery?

The infants’ brainstem functional development is directly provoked and measured in vivo, using music as the intervention tool.

The electroencephalography (EEG) method, and more particularly the Auditory Brainstem Response (ABR) technique (figure 2) is employed in the first 40 days post delivery, measuring Auditory Evoked Potentials (AEPs) before and after the musical intervention takes place (see Figure 3).

![Figure 2. The auditory brainstem response (ABR) equipment and application](image)
5. Research rationale - Hypothesis

In the early days and weeks of human development, specific stimuli, which are either delivered through the mother during the gestation period or - postnatally - in direct to the baby, may provide an efficient platform of advancement when correctly used as intervention tools.

Music can be easily employed as an intervention tool in this early developmental context, as it is not clinically invasive, while the primary sensorial system related to its perception and analysis (the acoustical apparatus and the brainstem, that is) is one of the first to be qualitatively functional in the perinatal period of life. The fact that research has already found that “subcortical processing of sound is not hardwired” [32:3] makes the specific intervention tool a valuable one to study early brain development, as it could definitely pronounce structural and functional brain changes during its implementation.

Based on the above, we mainly hypothesise in this study that using music as an intervention tool, a more efficient brainstem (functional/structural) development will occur perinatally, suggesting that proper inclusion of music in early clinical and educational settings is mandatory for a later enhanced cortical development and sensitivity.

![Figure 3. The research design](image)

10. References


Student Teachers’ Views on Their Curriculum and Training as Emerging Mathematics Teachers: Evidence from a South African Comprehensive Public University

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Abstract

South African education system is confronted with the lack of qualified teachers, particularly in rural areas where many teachers are underqualified. Preparing teachers to teach mathematics effectively is one of the most urgent problems faced by those who wish to improve students’ learning. Due to a particular policy implementation, rapid institutional shifts in the provision of teacher education such as mergers or the integration of teacher training colleges into universities came into South Africa in the recent past. In the Bachelor of Education courses, content and pedagogy are incorporated into the modules, named as content modules and curriculum studies modules. This paper provides a brief overview of research on the views of 3rd year Bachelor of Education (BEd, Mathematics Education) students on the modules taught to them and the training given to them as emerging senior secondary school mathematics teachers during the four years of their course. The theoretical framework rests on theories of pre-service teacher education. The study followed an interpretivist paradigm and qualitative approach. Data were collected from a sample of 95 student teachers using an open-ended questionnaire. The views of the above sample of student teachers on their course modules and an in-depth analysis of the course modules for mathematics education offered at the university were analysed. All ethical requirements were met. The findings of the study revealed that most of the student teachers were dissatisfied with the mathematics content modules taught to them as the content needed in the school mathematics curriculum was lacking in their university curriculum and that they do not get prepared adequately to become senior secondary school mathematics teachers. Most of them believed that even though the curriculum studies modules supported them on the skills and knowledge to teach the students in the schools, more time should have been dedicated to teach and familiarise them with the concepts. It was also noted that the mathematics content curriculum followed in the schools was not stressed in the modules. The themes emerged from the analysis made conclusions on connections between the Subject Content Knowledge (SCK) and training on Pedagogical Content Knowledge (PCK) the student teachers attain as emerging teachers due to the curriculum constraints of the university. This study agrees with many researchers in the field that many teacher education programs fail to prepare pre-service teachers to reconstruct their knowledge of content and educational principles into authentic classroom teaching and that pre-service teachers should acquire knowledge, skills, and dispositions that would enable them to study their teaching and gradually improve over time. It is recommended that the mathematics BEd curriculum of the university should include more opportunities for the mathematics education students to familiarise themselves with the SCK and PCK for the school mathematics content for them to be successful in their endeavor as emerging teachers.
Conflict in Multicultural Group Learning

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Abstract

Conflict is a natural part of any multicultural group learning (McGL). Dealing with conflicts in McGL is not an easy task due to multiplicity of differences such as cultural origins, beliefs, and practices[1]. It is crucial to address challenges and contradictions among learners that are increasingly diverse[2] due to internationalization in higher education system especially when the foreign students are expected to adapt the local cultural norms of behaviour and interaction. The core idea of McGL includes the mutually constituting influences of social interactions in jointly constructed activities across multiple settings and the function of mediating psychological tools[3]. However, these adaptations are remaining unclear. Therefore, this paper aims to identify and negotiate conflict in McGL by examining the patterns of instructional dialogues and problem-solving strategies on particular activities[4]. Cultural Historical Activity Theory (CHAT)[5] is seen as the best model to capture all these sense-making activities. By negotiating these contradictions, we argue that we are able to create meaningful McGL environments. Indirectly, McGL allows each student to become more sensitive and respectful to others’ differences. As a result, students could develop the ability to work together and overcome these cultural and communication difficulties.

References


Session 17: Global Issues in Education and Research

Title: The Validity of International Baccalaureate Scores for Forecasting Academic Performance in Higher Education
(Author: John W. Young)

Title: The Effects of Police Killings on African American Children’s Internalized Behavior
(Author: Ashley Cunningham)

Title: Non-native English Speakers’ Linguistic, Cultural, and Pragmatic Needs in International Medical Schools
(Author: Emily Harms)

Title: Campus Internationalization: Challenges, Issues, and Practices from a Philippine Higher Education Institution Perspective
(Author: Leilani Fatimah Ledesma Trompeta)
The Validity of International Baccalaureate Scores for Forecasting Academic Performance in Higher Education

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Abstract

Established in 1968, the Diploma Programme (DP) was the first program offered by the International Baccalaureate (IB) and is presently taught to students aged 16 – 19. It was created by teachers from the International School of Geneva, with assistance from several other international schools. The DP is inquiry-based and student-centered, and it focuses on the intellectual and personal development of the individual. It is designed to facilitate geographic and cultural mobility and to promote multilingualism and intercultural understanding. In addition to the DP, the IB offers three other curriculum programmes: Primary Years, Middle Years, and Career-related. At present, IB programs are offered to over 1.2 million students in nearly 4,700 schools in more than 150 countries worldwide.

1. Introduction

As of January 2017, there are more than 3,100 schools offering the DP, in over 140 different countries. The DP curriculum is made up of six subject groups (Language and literature; Language acquisition; Individuals and society; Sciences; Mathematics; and the Arts) plus the DP core, comprised of the theory of knowledge course, the extended essay, and service learning known as creativity, activity and service. The IB assesses student work through its own program of assessments as direct evidence of achievement against the stated goals of the DP courses. There exists substantial evidence that the DP is strong preparation for university-level work as several studies of DP graduates have found that they have significantly higher grades and graduation rates than students who did not complete the DP [1].

This study focuses on the quality of DP assessment scores as predictors of academic achievement in higher education, as represented by grades. A primary form of evidence used to judge the value of assessment scores is that based on the relationships between the scores and other important variables, evidence traditionally known as predictive validity. The accuracy of scores from assessments in forecasting the future academic performance of students is a topic that has been widely investigated for several decades [2], [4], [5 [6]. The admissions decisions of applicants to higher education institutions around the world may be based in part on DP assessment scores. This is the first large-scale, trans-national study to investigate the correlations between DP scores and later academic performance as measured by first-year university grades.

The main research question is: What is the range of correlations between DP scores and first-year university grades for an internationally diverse set of universities? Additionally, are there significant differences in the size of the correlations by gender and citizenship?

2. Research Methods

Data for this study were provided to us by an international sample of universities with large numbers of enrolled DP graduates. The sample is not intended to be representative of any population, rather these universities were purposely recruited because they could provide sufficiently large samples of DP graduates to ensure reliable statistics. Presently, we have data from four universities (one Australia, two Canadian, and one in the United States) and their results are shown in Table 1. Inclusion of the Canadian universities is critical to the success of this study as these are the two universities with the largest enrollment of DP graduates of any universities in the world. We are currently in the process of obtaining data from 10 universities from around the world. Students in this study first enrolled at these universities at the beginning of the 2014-15 or 2015-16 academic years.

We calculated the zero-order correlations between total DP assessment scores with first-year university grades. In addition, we calculated these correlations for subgroups of students divided by gender and citizenship, as these are demographic variables that we hypothesized may affect the size of the correlations. We used the dependent variable of first-year university grades as reported in the scale used by each university. For the Australian and Canadian universities, first-year grades are reported on a scale from 0 to 100, while for the American university, first-year grades are reported on a 0 to 4 grade-point average scale.
3. Results

Across the four universities, we found variations in the correlations between total DP assessment scores with first-year university grades. Because of the large sample sizes used, most of the correlations we report are statistically significant. In general, we found greater variability in the correlations for male students and international students than for female students and domestic students. In addition to the correlations by institution, we also calculated the weighted averages (by sample size) of these correlations in order to obtain a better idea of the central tendency of these values. In this sample of four universities, we found remarkable consistency across groups in the weighted correlations with values of $r = .54$ overall, $r = .51$ for female students, $r = .55$ for male students, $r = .60$ for domestic students, and $r = .53$ for international students.

4. Conclusions

The findings from this study provide the first large-scale empirical evidence of the predictive validity of total DP assessment scores in terms of correlations with first-year university grades and demonstrates that these scores are valid predictors of academic performance in higher education. Given that DP assessments are criterion-referenced, open-ended performance assessments, it is not surprising that these assessment scores are highly predictive of students’ later academic achievement. Nevertheless, it is useful to find empirical evidence that supports this assumption. As a matter of comparison, the results for these four universities show that total DP assessment scores are as strong a predictor of first-year university grades as SAT scores, which typically have correlations in the .50s with first-year university grades for students enrolled in American universities [3]. For students and schools that are part of the IB community, as well as for external stakeholders, this study is further confirmation of the overall quality and rigor of the DP.

5. References


The Effects of Police Killings on African American Children’s Internalized Behavior

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Abstract

With the rise of social media platforms such as Facebook and YouTube, more and more killings by police are being captured and brought to the public’s attention. Unfortunately, the rates at which African-Americans are killed by police are higher than those for Whites in the United States. The African American children left behind are often not offered assistance past their financial needs. Little to no research has been completed to study the effects of how these children’s behavior are affected in a school setting. At a young age, the school system and society teach children to respect and trust police because their duty is to serve and protect. But what happens when this perception is challenged? This review investigates African American children’s internalized behavior after a parent is shot and killed by police. It is important to continue research on this topic in order to affect change in public policy, diminish one of the barriers to learning African American children face, and increase the availability of resources which may help them cope with the loss of a parent.
Non-native English Speakers’ Linguistic, Cultural, and Pragmatic Needs in International Medical Schools

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Abstract

Communication skills are increasingly significant for English-language medical education [1]. The need for linguistic, cultural, and pragmatic instruction for international medical students is increasing as education and medical care become more globalized [2]. Medical students need specific linguistic skills as well as an understanding of the value system, which includes cultural and pragmatic awareness. While there have been several studies analyzing culturally and linguistically diverse students’ needs in medical education and clinical experience [3], [4], there is currently no agreement on the best way for an English for Specific Purposes department within an international medical university to serve the needs of the diverse population of medical students.

What linguistic, cultural, and pragmatic training will best prepare non-native English speakers to thrive in English-language international medical education and English-language health care settings? This paper, a literature review addressing this research question, is the first stage of a research project investigating practices used to support non-native English-speaking students at English-language medical schools. Instructors and institutions who provide academic English support for linguistically and culturally diverse populations will find this paper relevant.

References


Campus Internationalization: Challenges, Issues, and Practices from a Philippine Higher Education Institution Perspective

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Abstract

While there have been researches defining what makes an internationalized campus, few studies have been undertaken especially on identifying factors that influence how higher education institutions in the Philippines become internationalized. In line with this, the process of campus internationalization of Central Philippine University is analyzed. Specifically, this paper will discuss particular challenges and issues of a Philippine higher education institution in developing strategic international partnerships as one of the vehicles for internationalization. Partnerships have become increasingly important as the goals of internationalization have broadened. By looking at the institutional goals and priorities of the university, the question of how international partnerships can contribute to internationalization will be identified.
Session 18: ICT Developments and Diffusion

Title: A Computational Intelligence Tool to Support the Design of Outcome-Based Teaching
(Authors: Alaa Bafail, Jonathan Tepper, Ann Liggett, Fahd Banakhr)

Title: Can we play with the technology? Using iPads in Kindergarten
(Authors: Lisa Tsumura, Lorayne Robertson)

Title: Using Test Data to Find Misconceptions in Secondary Science
(Authors: Travis T. Fuchs, Mike Arsenault)

Title: Building Competence in Media Literacy through MOOCs
(Authors: Paula Hodgson, Masato Kajimoto, Betty Hui, Xiangyu Hou)
A Computational Intelligence Tool to Support the Design of Outcome-Based Teaching

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Abstract

The use of models, frameworks, and toolkits in learning design serve to support teaching practitioners in producing well-structured learning designs for students. However, existing learning design tools inherently lack an objective metric system which is able to measure the degree to which an educational design is well-formed according to either the principles of constructive alignment or more generally design practices that students find satisfactory in practice. Such a metric system, that could integrate measures of educational theory and practice, would enable teaching practitioners to make more informed design decisions such as which profile of activities/assessments to use for a particular set of learning outcomes. This paper presents the first computational intelligence tool that measures educational design quality in a way that is underpinned by both the theoretical principles of constructive alignment and how it is used in practice. Furthermore, the alignment metrics computed are calibrated by student satisfaction scores to promote those structures that are preferred in practice rather than from a theoretical standpoint thus offering more pragmatic and realistic design solutions.

1. Introduction

Designing for learning is a complex task and considered one of the most fundamental activities of a teaching practitioner [5]. The theory of constructive alignment is considered to be one of the most influential theories in higher education. It is an outcomes-based methodology for designing, promoting, and assessing deep student learning ensuring that all aspects of teaching, from intended learning outcomes, teaching and learning activities, and assessment tasks are all aligned to each other [4]. This guarantees appropriate and therefore effective student learning opportunities. Well-balanced (or constructively aligned) teaching practices have been proven to foster deep student learning [12] and thus impact highly on student satisfaction as clearly documented in [1] and [17]. The design and promotion of constructively aligned teaching practices has been supported to some degree by the development of software tools that attempt to support the teaching practitioner in the design process and assist them in the development of conscious and purposeful teaching. With the creation of different toolkits in this domain, tools differ significantly in terms of how they are structured and the types of pedagogical patterns provided to aid the design process. However, current learning design tools do not either encode a quantitative measure on which to base alignment or any means in which to adapt design patterns according to the student experience.

In this paper we therefore present the first implementation of Tepper’s alignment metric module [20] which represents and computes the level to which an educational design is constructively aligned. The tool is able to provide ‘alignment metrics’ for both holistic and individual aspects of a module design. We then present our approach for an adaptive intelligent learning design system that utilises artificial neural networks [18] to calibrate alignment metrics within the system according to effective practices as judged by student satisfaction. We refer to this resulting computationally intelligent learning design system as the Educational Design Intelligence Tool (EDIT). The purpose of EDIT is to support teaching practitioners in revising design decisions to better promote both the alignment of the system to the intended learning outcomes whilst restricting such decisions to those which engender deep student engagement and satisfaction (even if it violates a number of the underlying alignment principles). Finally, we reveal a number of design preferences formed by EDIT.

2. Literature Review

Existing learning design tools have been developed to support the learning design process and to assist teaching practitioners in planning the learning outcomes, teaching activities, and assessments. Some tools are based on particular pedagogic models or philosophies such the Learning Design Support Environment (LDSE) [10] which is
underpinned by an ontological model based on Laurillard’s Conversational Framework (CF) [10]. The CF embodies a number of pedagogical theories and understanding of lecturers’ design practices as elicited Laurillard and her team through interviews with teaching practitioners. Other tools, such as LAMS [7] and Phoebe [16] integrate instructivist, constructivist and problem-based learning theories to structure patterns to guide the teaching practitioners through the design process and support them in making informative design decisions. Importantly, these tools advise and guide teaching practitioners through the pedagogic design process. This guidance is manifested in several ways. For example, LAMS has an associated activity planner tool that provides a set of structured templates which include advice on using, completing, and repurposing teaching, learning and assessment activities for different educational contexts [6]. Both [3] and [6] commended Phoebe for the quality of its guidance as it incorporates a separate wiki-based online resource of tips, guidance, and digital tools to support the decision-making process. The London Pedagogy Planner (LPP) tool [9] in contrast, embeds the support and guidance within the design and decision-making process. It takes the user through a series of design decisions using an inspectable and editable model with specific pedagogical approaches to map between teaching components (e.g. intended outcomes and teaching activities). The LDSE incorporated pedagogical patterns that support sequencing the teaching and learning activities (TLAs) and their timing as a core feature. The design pattern is then interpreted in terms of the TLAs and their properties suggesting alternative activities inferred from comparisons between the user’s design decisions and the developed ontological model [13].

Despite the potential of these existing tools, there are several limitations. Firstly, they inherently lack objective metric systems that are able to measure the degree to which an educational design is well-formed according to underlying theoretical principles. Secondly, their use of a static knowledge-based system for guiding the design process i.e. its decision logic is hard-wired in. Therefore, these tools cannot adapt to changing practices or be tolerant of variations that govern the system yet may actually be successful in practice according to students’ experiences. This is despite the role of student evaluation of their experience being considered essential elements for enhancing the student learning experience [11], [17]. It can help identify the effective aspects of good designs that promote deep student learning whilst minimizing the use of those that do not [1], [17], and [19]. Integrating theory and effective practice based on student satisfaction scores would subsequently enable practitioners to make more informed decisions as to which teaching or assessment activities to use for what learning objective(s) or outcome(s). Subsequently, there is a real need to identify a metric system that enables education design quality to be measured and therefore managed. In addition, any such management system should be adaptive and ensure its decision making logic is underpinned not only governing pedagogical theories but also on what students consider to work in practice (as evidenced by high student satisfaction scores).

3. EDIT’s Alignment Metric Module

To address the measurement problem presented in the previous section, EDIT incorporates an alignment metric module to enable the quality of a module design to be numerically measured based on Tepper’s quantitative measure of constructive alignment [20]. Tepper’s metric uses Bloom’s Taxonomy for categorising the main components of the teaching system (learning outcomes (LOs), learning objectives (Lobjs), teaching and learning activities (TLAs), and assessment tasks (ATs)) according to the level of cognitive ability they elicit as provided in [4] and some basic principles of generative linguistics to represent the alignment structures. The computational framework utilizes basic set theory and linear algebra to express, represent and compute alignment. For each educational design, the alignment metric is able to generate three different types of tree structure as shown in Figure 1. The alignment is then computed among three main relations (V1, V2, and V3) where V1, V2, and V3 defined as:

- V1 the relation between LOs and Lobjs
- V2 the relation Lobjs and TLAs
- V3 the relation between Lobjs and ATs

![Figure 1. Three different types of tree structure](image)

(a) L⁰ tree

(b) L⁰ tree

(c) AT tree

The EDIT’s Alignment Metric Module

EDIT incorporates an alignment metric module to enable the quality of a module design to be numerically measured based on Tepper’s quantitative measure of constructive alignment [20]. Tepper’s metric uses Bloom’s Taxonomy for categorising the main components of the teaching system (learning outcomes (LOs), learning objectives (Lobjs), teaching and learning activities (TLAs), and assessment tasks (ATs)) according to the level of cognitive ability they elicit as provided in [4] and some basic principles of generative linguistics to represent the alignment structures. The computational framework utilizes basic set theory and linear algebra to express, represent and compute alignment. For each educational design, the alignment metric is able to generate three different types of tree structure as shown in Figure 1. The alignment is then computed among three main relations (V1, V2, and V3) where V1, V2, and V3 defined as:

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- V1 the relation between LOs and Lobjs
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- V3 the relation between Lobjs and ATs

![Figure 1. Three different types of tree structure](image)

Figure 1. Three different types of tree structure a) showing relationships between outcomes and objectives; b) showing relationships between objectives and TLAs and c) showing relationships between ATs and objectives [20].
The main features associated with EDIT’s alignment module are graphically illustrated in Figure 2 and designed to aid teaching practitioners in identifying and relating the core design components symbolically through a graphical user interface whilst abstracting them away from the actual alignment computations used to determine the alignment measures. As input, the module can import existing design patterns from the LDSE, as an XML file, or users can manually input the components of their learning design manually into the system. The module maps the design components to their associated level in Bloom’s Taxonomy. The Bloom’s Taxonomy levels of the components (based on [4], [20]) are then fed into the alignment metric module to compute and measure how constructively aligned the components are. In order to compute the alignment for a holistic module design, the tool generates three types of tree structures and individually calculates the alignment between learning outcomes and learning objectives, learning objectives and TLAs, and learning outcomes and ATs. The user needs to specify the learning outcomes and the dominated learning objectives in order to generate V1 tree where each learning outcome (parent) can dominate one or more learning objectives (children) likewise for V2 (specify the learning objectives and the dominated TLA(s)) and V3 (specify the learning outcomes and the dominated ATs). V1, V2, and V3 trees need to be balanced via fixing the valence (i.e. the number of children each parent can dominate) for each tree type. If the vector-width of a tree is not balanced for a given parent node then filler elements (i.e. `<empty_nodes>`) are added to make up the number of dominated elements. The empty nodes are set to the level in Bloom’s taxonomy indexed by the associated parent node to help maintain equilibrium. The tool then calculates the equilibrium for each relation V1, V2, and V3 via 4-step process as follows: 1) calculates the desired alignment values. The crude assumption made to obtain the desired elements is that given a parent node (e.g. learning outcome) the set of associated children nodes (learning objectives) should elicit the same Bloom’s level as the learning outcome (parent node), 2) Calculates the actual alignment values i.e. the actual level in Bloom’s taxonomy referenced by the associated component. 3) Calculates the differences or misalignment (error) values between the desired alignment values and the actual alignment values. Finally 4) calculates the equilibrium alignment value between the parent nodes and the children nodes assigned to them in order to measure the overall alignment between them. This is obtained by calculating the root mean squared error (RMSE) across all elements of the misalignment values between the parent nodes and the children nodes. The overall constructive alignment value for the entire module design is then calculated by aggregating all three relations. According to the computational framework [20], if the parent node refers to a higher level in Bloom’s Taxonomy than any child node then ‘negative misalignment’ is said to occur as the child verbs/activities will not enable the level of the parent to be met. Conversely, if one or more child nodes refer to a higher level of Bloom’s Taxonomy than the parent node, then ‘positive misalignment’ is said to occur as the child verbs/activities will enable students to exceed the level of the parent node. Finally, if the child nodes are exactly the same as the parent node then ‘perfect alignment’ is said to occur.

The alignment metric module calculates how well aligned the module components are when linked together via interpreting the module design in terms of the core components mentioned above and evaluating the relationship between components in terms of whether they are aligned, negatively misaligned, or positively misaligned. Accordingly, it modifies the misaligned components by suggesting alternative and better-suited selections based on principles of constructive alignment. This enables teaching practitioners to adapt their practice to better align their modules by making them aware of misalignments within their educational designs. The module provides a top-down theoretical approach to educational design and unfortunately there is currently no clear consensus as to what the appropriate alignment values should be to determine acceptable design patterns. Subsequently, we have extended the alignment metric module to incorporate and use ‘good’ design practices, as judged by student satisfaction scores, to calibrate the alignment measures and thus to determine acceptable alignment ranges based on effective practices.

4. Calibrating the Alignment Measure by Integrating Theory and Practice

Effective design practices, as judged by student satisfaction scores, rather than theory in and of itself, was considered as a basis for determining acceptable values for the alignment measure, thus integrating theory and practice into EDIT’s decision making. Reviewing good teaching practices that generate high levels of student satisfaction may help to provide useful insight into the value of theoretical alignment values, particularly if there appears to be a strong correlation between the two i.e. alignment scores and levels of student satisfaction. An advantage of this approach will be to help teaching practitioners to better align their module designs in a way that is both theoretically and practically relevant and based on those actually experiencing the impact of the educational design. In order to and use good design practices, design pattern data were extracted from a University Virtual Learning Environment (VLE). In-depth desk based observations covering
567 modules from the University’s School of Science and Technology (spanning departments of Physics, Biology, Mathematics, Computing, and Chemistry) were conducted to collect the core educational design components (i.e. LOs, Lobjs, TLAs and ATs) in structural design pattern format. A total of 621 module design patterns were generated from the conducted process. The student satisfaction scores associated with the module design patterns were also captured. All design patterns were then processed by the Alignment Module to calculate and ascribe a constructive alignment score to each core relation (V1, V2, and V3) within the design. In order to discriminate the module design patterns based on their effectiveness in practice i.e. by according to the different levels of student satisfaction, the design patterns were rank ordered according to the module’s student satisfaction score (via the EvaSys system, a commercial system for creating, distributing and analysing student satisfaction surveys). A five-point Likert scale is used to gauge student satisfaction where 5 refers to ‘definitely agree’ and thus excellent satisfaction and 1 to ‘definitely disagree’ and thus poor satisfaction. The design of the questionnaire is aligned to the National Student Survey [14] and therefore covers the same areas of the student learning experience. An EvaSys threshold score of 4 (refers to ‘Agree’) was selected and therefore the top 84% (519) of the module design patterns were designated as ‘well-formed’ design patterns representing the good and effective module design practices. Thus the patterns were used to identify meaningful alignment value ranges for the three main relations (V1, V2, and V3) for Tepper’s metric [20]. Note that we calculate V3 differently to that proposed in Tepper’s original model. We calculate V3 as the relationship between learning outcomes and ATs (rather than objectives and ATs) as this is more closely related to practice. Applying the metric to the well-formed’ design patterns resulted in the alignment value ranges shown in Table 1. We therefore expect that if module designs stay within these ranges then the modules will be well-formed and constructively aligned in a way that will potentially yield positive student satisfaction.

### Table 1. Acceptable and meaningful alignment value ranges calculated from the good and effective module design practices.

<table>
<thead>
<tr>
<th>Alignment value ranges</th>
<th>MIN</th>
<th>MAX</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1 (LO/LObs)</td>
<td>4.8</td>
<td>11.1</td>
<td>7.91</td>
<td>3.21</td>
</tr>
<tr>
<td>V2 (Lobj/TLAs)</td>
<td>6.9</td>
<td>11.5</td>
<td>9.26</td>
<td>2.38</td>
</tr>
<tr>
<td>V3 (LO/ATs)</td>
<td>7.8</td>
<td>13.1</td>
<td>10.45</td>
<td>2.74</td>
</tr>
<tr>
<td>Overall module alignment</td>
<td>7.6</td>
<td>10.7</td>
<td>9.21</td>
<td>1.62</td>
</tr>
<tr>
<td>Student satisfaction</td>
<td>4</td>
<td>5</td>
<td>4.5</td>
<td>0.28</td>
</tr>
</tbody>
</table>

5. Discussion

In order to endow EDIT with an adaptive knowledge base that can learn alignment information directly from the good module design patterns, we use artificial neural networks as a novel approach for adaptively supporting the educational design process in a way that marries constructive alignment with good design practice and therefore incorporate both theoretical and practice-based models of design practice. Figure 3 illustrates an overview of the proposed modular architecture.

![Alignment Calculation Diagram](image)

Figure 2. Main features of the EDIT’s alignment metric module.

![EDIT Diagram](image)

Figure 3. Schematic Diagram of EDIT.
We implement an adaptive knowledge base using artificial neural networks. Artificial neural networks are adaptive systems that have learning properties enabling them to adapt their internal parameters in order to satisfy constraints imposed by a training algorithm and a training set consisting of input and output examples. Instead of following a set of rules specified by a human expert, neural networks are universal function approximators that can learn any function by example [8], [18] and can automatically deduce the underlying rules that describe the input-output relations found in the training set of representative examples. We explored feed-forward multi-layered perceptron networks (FFMLPs) with a broad range of different hidden layer configurations, from shallow to deep networks, as well as different learning algorithms as discussed in more detail in our paper [2]. We used this approach to train our model to specifically memories module design patterns that yield high-levels of student satisfaction (and the related alignment metrics) and therefore to act as a neural auto-encoder. The resulting weights and hidden unit representations form the knowledge of the system concerning the relationship between design patterns and high student satisfaction. As the neural network is trained to act as a ‘perfect memory’ of good design patterns, it is anticipated that it will subsequently process test patterns (design patterns of modules with low student satisfaction) as noisy versions of those ‘good’ design patterns it was trained with, thereby reproducing the nearest ‘good’ pattern(s) on its output layer and therefore modifying the original design that was presented on its input layer. Our preliminary experiments show that in most cases, EDIT was able to correct module designs with poor alignment and student satisfaction in a way that was supported by the pedagogic theory (e.g. using collaborative based and social-constructivist learning activities) and attracted higher levels of student satisfaction. Unlike existing learning design tools, EDIT was therefore able to recommend alternative types of objectives, activities, and assessment tasks relative to the learning outcomes to effect better alignment.

6. EDIT’s Design Preferences

After evaluating EDIT on the 102 module design patterns found in the test set, we identified that it had formed the following design preferences based on its data-orientated knowledge-base of theory and practice:
1. Both negative and positive misalignment is supported when associating learning outcomes and learning objectives – indicating some confusion in practice as to how these are associated and distinguished.
2. TLAs and ATs that develop or assess higher levels of knowledge and understanding than their associated learning outcomes or objectives are promoted (allowing positive misalignment to occur).
3. TLAs with higher degrees of questioning, interaction and group-based activity are preferred even if this results in significant positive misalignment.
4. Essay examinations are preferred over traditional unseen examinations for improving alignment and student satisfaction. The research literature appears to support this as essay type examinations require less memory and gives a better (compared to non-essay examinations) evaluation of how students have understood the subject and their ability to apply their knowledge and understanding [15].

7. Conclusion

We reviewed and discussed the limitations of some existing learning design tools that have been developed in recent years to guide and support teaching practitioners in making informed learning design decisions. We subsequently introduced, EDIT, with its alignment metric module and adaptive knowledge base to address the alignment measurement problem and to successfully integrate theory and practice into the educational design process. The artificial neural networks used enabled EDIT to marry constructive alignment with good design practice in a way that promoted high levels of student satisfaction. EDIT is a promising tool that provides addresses the gap identified in our introduction.

8. Future Work

EDIT represents a data-orientated view of design practices and is dependent on the veracity of its input data. Further research will therefore focus on generating larger samples of module designs that reflect practices across broader subject disciplines and higher education institutions. This will involve the use of focus groups that will help to better establish practices surrounding the use of learning outcomes and learning objectives as there appears much confusion in this area. We will also continue to investigate the design preferences of EDIT and how the transformations it makes are realised in practice i.e. do the projected improvements in student satisfaction actually materialise?

9. References


Can we play with the technology? Using iPads in Kindergarten

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Abstract

This paper describes research-in-progress to examine how teachers use technology in Kindergarten to meet multiple curriculum outcomes. Earlier studies looked at how iPads support literacy and numeracy acquisition but studies examining iPad use for other curriculum areas are not as prevalent. There is a shortage of literature on how young children use technology for play. The literature research conducted for this research study shows that young children and technology use can have positive results though it is under-used in early years’ classrooms. The literature also indicates that there are multiple, known barriers to the use of technology in schools. The province of Ontario, Canada has introduced a new, play-based Kindergarten curriculum policy but our analysis is that it provides insufficient support to help teachers use technology within play-based early years’ settings. Findings indicate learning other than literacy, numeracy and science is considered less in both policy and the literature related to technology use. These findings point to the need for more specific guidance for early childhood educators on the integration of technology into their pedagogical schemas and children’s play environments.

1. Introduction

In Canada, as in many other countries [1], it is quite commonplace to see children playing with iPads or other types of mobile devices. Research to date on the use of technology by young children has demonstrated that it can be approached through many lenses. In the British context, for example, Burnette discusses how research has highlighted the “playfulness, agency and creativity with which young children engage with digital texts” [2], p.248. It is routine in Canada to see young children playing with technology. In fact, young children in many countries see pervasive technology use modelled and copy it [1]. Children under five have been shown to interact with multiple different digital technologies [3]. By the time children enter Kindergarten, many of them are aware of the technology in their environment as well as its applications, and they have already developed skills of technology use [4]. Parents agree that children in the 21st century need to be technologically literate and that technical literacy is an important skill [3].

2. Literature Review

At this time, precisely how many Kindergarten classes integrate technology is not known although some researchers raise concerns that children are experiencing more technology in their out-of-school lives than in the classroom [1], [5]. Many factors affect technology implementation in school but central among these is the attitude of the teacher [5]. Overall, however, technology is generally found to be under-used in early years’ classrooms, and its use has been primarily for traditional direct instruction purposes rather than for the student use of the technology [5].

Schools adopt technology to differing degrees which may depend on available resources but may also depend on the relative importance which is placed on technology for student learning. Schools need to consider what types of technology use will suit young learners best. For example, navigating a traditional computer with a (QWERTY) keyboard is often difficult and requires teacher assistance for Kindergarten-age children but an iPad touch-screen interface is a more user-friendly option for young learners [6]. It also makes learning management easier for teachers because children can navigate the technology more independently and the teacher can focus on what students are learning on the devices.

Research to date on technology use in Kindergarten has been mostly positive (e.g., [6], [7]). Most research on iPads and early learners to date has focused on language learning [6], [8], [9]. Multiple studies have found that using iPads helps students develop literacy skills such as learning about reading, print, printing letters, and phonemic awareness [6], [8], [9]. Applications such as digital books give children different types of literacy experiences and increase engagement with print [7]. Studies on the success of mathematical Apps as a tool for improving numeracy skills report positive results [10], [11]. These studies mostly indicate that iPads have a
positive impact on both literacy and mathematics for young children.

The Kindergarten curriculum in Ontario has shifted, however, from being subject-based to a more holistic view of learning. Our research analyzes the Kindergarten curriculum policy in Ontario relative to the literature on technology use in early childhood programs. The findings of this study have significance for parents, early childhood educators, and researchers.

3. Ontario’s early years’ curriculum

In November, 2009, Pascal released a report on the implementation of Ontario’s Early Years Education Program [12]. One of the recommendations was the implementation of a Full Day Kindergarten (FDK) program in Ontario. Pascal argued that the implementation of a full day program for both four- and five-year-olds in Ontario would be the best public policy for student success [12]. FDK began in Ontario in September, 2010 in nearly 600 schools [13]. The stated goals of the program are: to create a strong foundation in the early years, to ease the transition to grade one, to allow young children to learn in a play-based learning environment, and to improve student success in the future [14]. While the program was phased in gradually, it was fully implemented by September, 2015.

The curriculum policy, which explains the learning goals for the program, was released in draft by the Ontario Ministry of Education in 2010 [15]. Underlying the curriculum policy were theories of constructivism and developmentally-appropriate practice. One main goal for children in this program is learning through play in a play-based environment because play forms the foundation of intellectual, social, physical, and emotional skills that children need to lead successful lives [15].

One teachers’ union, the Elementary Teachers Federation of Ontario, identifies elements of play: it is a pleasurable activity which is spontaneous, voluntary, and intrinsically motivated; play engages the player; and it involves an element of make-believe [16], p. 5.

The Ontario Kindergarten curriculum [17] outlines five fundamentals of play-based learning:

1. Play is recognized as a children’s right, and it is essential to a child’s optimal development.
2. All children are viewed as competent, curious, capable of complex thinking, and rich in potential and experience.
3. A natural curiosity and a desire to explore, play, and inquire are the primary drivers of learning among young children.
4. The learning environment plays a key role in what and how a child learns.
5. In play-based learning programs, assessment supports the child’s learning and autonomy as a learner. [17], p.12.

Another change to the Kindergarten curriculum policy in its 2016 release was that the learning goals were not categorized by subjects (such as Language and Mathematics) but, instead, were separated into four frames or broad domains of learning:


These four frames are based on a type of pedagogy called ways of being which is outlined in the Ontario Ministry resource: How Does Learning Happen? Ontario’s Pedagogy for the Early Years [18]. Belonging, well-being, engagement, and expression are identified as four foundational conditions for children to learn and are conditions that children seek naturally. When these conditions are fulfilled, children’s learning and development are optimized [18]. Each of the four frames in the official Kindergarten policy of 2016 [17] align with these four foundational conditions (See Figure 1).

The new curriculum for Kindergarten includes some significant shifts in thinking about the early years. Early childhood educators are encouraged to think about broader domains of holistic child development rather than development in discrete subjects. In addition, according to the new Kindergarten curriculum policy, learning tasks need to be empowering, play-based, and individualized to apply to each student’s unique interests and allow each student his or her own creative voice [17].

Figure 1. The Four Frames of Kindergarten Connect to the Four Foundational Conditions to Learn [17], p.14
Another significant shift with the new Kindergarten policy was the introduction of less formal, more anecdotal report cards; student progress would be reported on the broad areas of learning or frames rather a progress report on the individual subjects.

The new Kindergarten policy introduces shifts in pedagogy in multiple areas such as: the focus on learning through play; the focus on developmentally-appropriate practice; and the framework of the four foundations or conditions for learning. The teacher role shifts from the “sage on the stage” where the educator is viewed as the transmitter of knowledge to the “guide on the side” [19]. In this role, the educator is the facilitator of learning, creating opportunities for students to construct their own knowledge [19]. Developing the whole child, and capitalizing on children’s natural curiosity and the authentic learning that occurs during play are important aspects of the new Kindergarten curriculum policy.

What needs further scrutiny, however, is whether or not there are connections made between play and technology. Edwards, for example, sees that multiple countries are separating the concept of play-based learning from the use of digital technologies [20]. She argues that a more useful pedagogical orientation is to support teachers in introducing technology and play in combination, along with the critical thinking skills requisite with this new type of learning and these new literacies [20].

Play is addressed in Ontario Kindergarten policy. A report for the Ministry of Education on the implementation of the Ontario full-day early learning Kindergarten program states that Kindergarten classrooms in Ontario should be providing children with large blocks of uninterrupted play totaling a minimum of one hour in both morning and afternoon [14]. This time should be child-directed, providing a stimulating environment for young children and teachers should engage with students in sustained, shared thinking (SST) [21]. SST means that educators purposefully and sensitively intervene during play to help children gain new understandings and move forward in their learning. This includes an assumption of developmentally-appropriate practice where educators continuously assess at which level of development a child is learning so that they can provide further learning opportunities to move the child toward the next level [22]. SST also provides an opportunity to help students develop metacognitive skills when educators notice and name the learning during interactions [17]. What is interesting to explore, however, is Edward’s assertion that play and technology have become separate entities in international Kindergarten policies. In order to examine the Ontario Kindergarten curriculum from this perspective, a policy analysis was undertaken which is explained in the next section.

4. Policy Analysis

The Ontario curriculum policy for Kindergarten [17] was reviewed for its use of the word technology. We used a simple technique of analyzing how many times the word “technology” appears in the policy and in what context. While this seems to challenge more complex forms of policy analysis (e.g., Ball, 1994), we found that it was useful for our purposes. Ball encourages an examination of both a policy’s text and its discourse [23]. We consider both of these aspects in our initial policy analysis.

The word “technology” first appears in The Kindergarten Program [17] in the table of contents. Here technology is connected with Information and Communications Technology or ICT (p. 2). The second occurrence links technology with science as in “science and technology” (p. 18). This occurs in the section on “Play”, although the concepts of technology and play are not linked. The third and fourth uses of the word technology in the policy link technology with collecting and analyzing information (p. 38). The fifth occurrence of the word technology links it to mathematics and data collection (p. 75). The next time technology is used, it is with respect to accommodating students with special needs (p. 99).

Our analysis of the Ontario Kindergarten policy reveals that play is used in one context, and technology is used with other contexts, but technology and play are not combined in the policy. This analysis matches Edwards’ findings related to other international Kindergarten policies [20] and needs to be considered in light of the reported lack of evidence that teachers are integrating technology into their classrooms effectively, and that when they do integrate technology, they tend to use it for purposes of teaching rather than putting the technology into the hands of the students for their learning [1], [5], [24].

5. Barriers to Tech in Kindergarten

There are differing perspectives on the role of technology with young children because some studies focus on the negative impact of too much screen time while other studies look at technology’s advantages [25]. One of the more persistent debates about technology and young children is with respect to screen time. One review of the literature finds that many studies show the benefits of technology use for the learning of young children such as increased vocabulary, higher achievement, modelling of social
skills, promotion of visual and kinesthetic response skills, problem solving, and assistive technology for special needs students [25]. This same review cites concerns that excessive screen time may be linked to obesity, sleep disturbances and poor relationship skills. Another concern cited in the literature is exposure to violence and harmful commercialism [25]. For these reasons, and others, the US National Association for the Education of Young Children’s position statement cautious that tech use in the early years should be passive not active, and it should be developmentally-appropriate [26].

Other obstacles to successful iPad implementation in classrooms have been reported. Large studies of early childhood educators examine how technology is being used in schools with young children, and finds that, although educators may have access to technology, it is under-used in the classroom and this is prevalent in early childhood education [5], [27].

5.1. First and Second Order Barriers

One reason why technology is underused in the early years [1] [5] may be that teachers are unsure of how technology fits into a play-based learning environment. There are likely multiple reasons why teachers of early years are not reporting high levels of technology use. Ertmer [28] describes barriers to technology integration as first- or second-order barriers. First-order barriers include environmental conditions that would inhibit technology use such as inadequate wireless internet, lack of technology access for teachers and students, and possibly unsupportive administration or school boards. Second-order barriers refer to attitudes, beliefs, knowledge, confidence and skill level. Ertmer suggests that these barriers are the more difficult to overcome because, even when the infrastructure is available in schools, if teachers are not positively disposed to the role of technology in the classroom, they will likely not choose its use as an educational tool [28].

A subsequent study by Ertmer and colleagues [29], finds that educators with student-centred beliefs reflect this in classroom practice through authentic assignments, student choice, and collaborative learning activities. They find also that the teacher’s belief that technology is important to student learning has the greatest impact on successfully implementing technology in classrooms. The belief that technology can help children learn is a similar predictor of technology use in other studies [5], [27].

Despite the evidence that second-order barriers play a large role in the success of technology integration, first-order barriers, such as the provision of hardware and software also impact early childhood educators’ use of technology. In a study on iPad integration into K-12 classrooms, teachers report that there is insufficient time to integrate iPads into instruction and they struggle with connectivity and device management issues. Second-order barriers such as a shift in teacher-student roles and the challenge of finding appropriate apps for students at different levels are also reported. Teachers feel they do not have enough time to learn and explore how to use the iPads in their practice and it is a challenge to find the right app for the curriculum goals, especially with students at so many different levels [31].

Younger educators are more likely to respond positively to using technology in the classroom [30], [31]. Having a supportive administration, and the provisions of professional development and support for teachers play a role in how teachers feel about technology [27], [29], [30], [31]. Teachers who have professional development which focuses on using technology at their students’ level are more likely to use iPads in the classroom, and as the frequency of targeted professional development increases, so does teacher use [27]. When teachers have training and access to iPads, their attitudes about the benefits of using them in the classroom increase [31].

As school boards spend increased amounts of money on technology, it is important to ensure that teachers are receiving an adequate amount of support and there is a strong technology vision in place [5].

In another study, when iPads were introduced into three early years’ classrooms, the novice teachers report that they spend hours of their own time searching for suitable apps for their students and also planning lessons around apps. Technical difficulties also hinder their ability to use iPads as a learning tool [32]. In addition to these first- and second-order barriers, which appear to be experienced frequently by many teachers, early years’ educators face another dimension to successful technology use, which is how to incorporate technology that is developmentally-appropriate into a play-based program for young children.

5.2. Digital Play

According to Edwards, new perspectives on the relationship between play and technology need to be found to help teachers understand that digital play helps children to understand the world around them. She suggests that play is culturally adaptive and as we become more and more immersed in technology, it becomes part of our children’s play [20]. If educators speak to children about their play with digital technologies using SST practices [21], she theorizes that teacher pedagogical practices will likely shift to ones that involve technology in play,
and this will also help students to think critically about how they play and how they develop new digital literacies [20].

According to another study, children’s play changes as they interact with iPads. Children consume media texts, and then transform and personalize them, based on their own interests and backgrounds. Children move between using iPads independently or with peers, and between more traditional play such as blocks or sand table play. Often the digital text inspires another form of play such as drawing a picture of favourite characters or role-playing based on characters in the text and children remix the text to add in their own experiences. This type of remixing of texts during play may happen without the technology, but the introduction of the iPad creates digital media texts and opportunities to produce new texts that are more accessible for young children [33].

5.3. Educator Involvement in Play

One study [34] shows that, when technology is incorporated into the play environment, early childhood educators may have a hands-off approach, resulting in several issues such as the lack of support or guidance to the children using technology, or reactive feedback such as organizing turn taking, and these responses can limit the learning experience. Three categories of educator involvement in computer play have been identified: Reactive supervision consists of dealing with problems that may arise when students use the computer during play such as turn-taking. With guided interaction, the educator helps students learn about technology and how to use it individually or in small groups. This type of interaction is rare in early childhood education settings. A hybrid approach to educator involvement in computer play is to provide some direction on how to use the technology and then, once children know the basics, provide guided instruction for those that need it and reactive supervision for the other children [34].

In general, however, most settings do not have formal procedures set up for the introduction of new technologies, and researchers observe a lack of guidance from adults when children use technology [32], [34]. This results in friction amongst students over who will use the iPads, improper use of iPads resulting in apps not functioning properly, or children’s work being lost [32]. Children will benefit from a hybrid approach but it appears that it has not been considered yet for play-based settings [34].

6. Conclusion

Play is a complex process that can be used loosely to mean many different things. Although the Kindergarten curriculum policy has shifted to a play-based pedagogy, Ontario’s early years’ educators are being asked to make multiple shifts in practice simultaneously, and they will likely require time and professional development to make these changes in practice. Educators should be supported in making change through policy and modelling. This study identifies a policy gap in the Ontario Kindergarten policy [17] with respect to connecting play and technology.

In addition to this policy gap, there is a shortage of research available at the intersection of technology and play-based learning. The main pathway of learning for children is through play-based learning. More research will model how technology fits into a whole-child pedagogical stance, and how teachers can effectively use technology in play-based learning environments. While technology implementation barriers will likely persist, research which showcases integrated practices for early childhood educators which incorporate play, technology, sustained shared thinking, and developmentally-appropriate practice are needed.

An action research study is under way to investigate how teachers can use iPads in the classroom to meet multiple learning goals across the four frames of the Ontario Kindergarten curriculum. This study is unique in that it will provide more insight into how early childhood educators can use technology in play-based settings.

7. References


Using Test Data to Find Misconceptions in Secondary Science

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Abstract

Students, as well as teachers, often learn what makes sense to them, even when it is wrong. This is a problem. If teachers carry such misconceptions themselves, or are unaware of common misconceptions their students may have, their attempts at effective teaching may be undermined. We sought a quick, quantitative way of identifying student misconceptions in secondary science. We examined the most common wrong answers given by students on a multiple-choice test to see how identified items compared to misconception questions from the literature. For the item to be studied greater than 50\% of students had to choose the same wrong answer. We used a large sample size (107,921 students, 1,131 questions) over many years (1995-2016). However, we believe teachers could use their own tests in a similar way. Using The University of Toronto’s National Biology Competition test data we found that the most common wrong answers identified agreed with many facets of the extant misconception literature. The questions were ubiquitous across subject areas, pervasive regardless of question difficulty, and had a high distractive power. We also found that identified misconception questions could be supported by the literature. That is, when questions contained a wrong answer chosen by greater than 50\% of participants, the wrong answer could be found in previous misconception studies. We find that seeking students’ most common wrong answer on a multiple-choice test is a fast, reliable, and data-driven way to identify misconceptions. This could be a boon for teacher self-assessment and professional development.
Building Competence in Media Literacy through MOOCs
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Abstract

Socially and culturally diverse learners can learn and build competence in media literacy through the experience of international intellectual discussion by attending massive open online courses (MOOCs). This study explores active learners in Canada, China, Hong Kong, India and the United States on a MOOC, ‘Making Sense of News’, offered in 2015. The unfolding situation in forum discussions allowed the global learners to reflect on critical stances and interpretation of news. A mixed method was used for the study, including descriptive analysis of the MOOC’s entry survey and qualitative discourse analysis of the MOOC’s forum discussion. Four sub-themes were identified among the 156 participants in the course forum. The study signifies that MOOCs provide an unprecedented experience for learners to gain an insight into variations in local and international news consumer behaviour and journalistic practices.

1. Introduction

Many fabricated stories appeared as news before the U.S. presidential election in 2016. Such fake news went viral through social media such as Facebook, according to engagement figures published in monthly reports by Buzzfeed [1]. Massive open online courses have a few unique characteristics in an educational setting, and they attract massive numbers of learners to participate in a single cohort compared with traditional online and distance learning courses [2]; these courses are open to all regardless of prior qualifications. Cognitive diversity is often observed in MOOCs because prior academic backgrounds range from post-secondary to advanced degrees [3] [4]. Teaching content in MOOCs consists of short video-based lectures, and learners can study through the structured sequence or jump between weekly topics to learn at their own pace during the course period [5]. Apart from viewing videos, participants’ attempts in a quiz or posts on course forums are regarded as active learning after the MOOC commencement date [6].

MOOC forum discussions are the main medium of interaction between participants on content, and with the course team [6]. Students are better engaged through the open interactions of the forum and are more ready to complete the MOOC [7]. The global communications in this context may promote socialization and address the needs of learners with diverse backgrounds, both cognitively and culturally [8]. This implies that experienced learners with professional knowledge and experience can share among less experienced learners, and participants can contribute and disseminate regional practices to global learners [9]. The majority of discussion is around content-related questions, in which participants are engaged in constructive dialogue in a way that answers may be related resources and/or productive responses based on field experience [10]. Learners often get timely responses, including on difficult topics [11]. Nevertheless, the course instructors may make postings in response to learner-generated questions and issues and provide positive acknowledgments [12]. The volume of forum discussion can be stimulated by active tutor participation, but this may not slow down the decline in participation across the weeks [13]. In addition, there is much information available in the MOOC forum activities. Based on the type of questions, statements and comments posted in the forums, the overall course difficulty level, course materials and clarity of content dissemination, students experiencing difficulty can be identified [14]. In this study, we explore the natural voluntary responses of those who participated in the forum activities among the active learners.

2. Background of the study

A five-week MOOC, ‘Making Sense of News’, was designed as an introductory-level course in which the expectation was two to three hours of studying short videos presented with English and Chinese transcripts, reading suggested materials, holding discussions with other participants and doing summative assessment tasks. It was offered between 19 May and 30 June, 2015. Learners could receive a certificate for completion and reach the pass mark of 60% for the assigned tasks set in the MOOC. Topics of the course included:
• What makes news? The blurred lines between news, promotion and entertainment.
• Why does news matter? Social sharing and the dynamics of the news cycle.
• Who provides information? How to evaluate sources in news reports.
• Where is the evidence? The process of verification.
• When should we act? Recognizing our own biases.
• How do we know what we know? Becoming an active news audience.

To consider overall student learning experience, global participants were invited to pull examples from their local areas in the first assessment task. To deepen understanding of concepts, participants in the course were highly encouraged to hold discussions relating to the weekly activities through the forum. Discussion topics were structured as general discussion, subject-specific discussion, course feedback and technical feedback. Author 2 and his co-teaching colleague responded to questions relating to the course, and four other teaching assistants responded to technical questions. Postings on subject-specific discussions were selected for exploration in this paper.

3. Methodology

A mixed-method approach has been used for investigating the asynchronous mode of learning in the forum. Three sets of data were collected: a pre-entry survey, forum postings and a post-course survey. Because the study examines active participation in forum activities, qualitative data posted on the forum discussion of the course offered in 2015 were collected. All data on forum discussions were first extracted from the course, and the top five countries in the forum activities with Hong Kong were identified using Tableau. The postings by the course team in Hong Kong were checked and were removed separately from the postings by participants. The first round of coding of postings was conducted based on subject-specific postings, highlighting the central ideas from each post and excluding postings related to assessment prospects through doing the MOOC.

Data collected included educational background, motivation for joining the MOOC, and academic and work status: 286 participants from Canada, China, Hong Kong, India and the United States were sampled in the study. For participants with a bachelor’s degree or higher, the countries, in descending percentage order, were Hong Kong, China, Canada, India and the United States. The main reason for joining the MOOC was an interest in the topic. Participants from China, Hong Kong, India and the United States cited completing the course to earn a certificate; participants from India, China and the United States cited gaining competitiveness for college entrance through completion of the MOOC; participants from India and China cited participation in the social community of the course; and participants from Canada, Hong Kong, India and the United States wanted to enhance their employment prospects through doing the MOOC.

Active learners were identified when they watched a video and did a quiz or made a posting through the system. The 256 active learners (90% responded to the entry survey) were tracked, and 156 forum participants made 398 postings (51% of all postings), which were collected from the five countries (Table 1, Table 2).

Table 1. Percentage of forum participants among active users in MOOC

<table>
<thead>
<tr>
<th>Location</th>
<th>Active users</th>
<th>Forum participants</th>
<th>% of forum participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>22</td>
<td>15</td>
<td>68%</td>
</tr>
<tr>
<td>CN</td>
<td>34</td>
<td>26</td>
<td>79%</td>
</tr>
<tr>
<td>HK</td>
<td>64</td>
<td>20</td>
<td>31%</td>
</tr>
<tr>
<td>IN</td>
<td>30</td>
<td>15</td>
<td>50%</td>
</tr>
<tr>
<td>US</td>
<td>106</td>
<td>80</td>
<td>75%</td>
</tr>
<tr>
<td>Total</td>
<td>256</td>
<td>156</td>
<td>61%</td>
</tr>
</tbody>
</table>

Table 2. User posting frequency of the five countries

<table>
<thead>
<tr>
<th>Location</th>
<th>% of one or two postings</th>
<th>% of postings &gt;2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>78.6%</td>
<td>21.4%</td>
</tr>
<tr>
<td>CN</td>
<td>61.5%</td>
<td>38.5%</td>
</tr>
<tr>
<td>HK</td>
<td>85.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>IN</td>
<td>66.7%</td>
<td>33.3%</td>
</tr>
<tr>
<td>US</td>
<td>75.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Total</td>
<td>73.5%</td>
<td>26.5%</td>
</tr>
</tbody>
</table>

There follows a sample of forum postings from the active learners reflecting on the core conceptual understanding upon attending the MOOC:

3. Results of survey and forum discussion

An entry survey was sent to participants registered on the commencement date of the MOOC.
4.1. Building a critical awareness of news authenticity

Learners show a reflectiveness in seeking the authenticity of news:

‘We usually read same news from different websites and we don’t know which one is the truth or the best. We study some useful knowledge from this lesson and how to judge the source of news.’

#168, China

‘Not many people are consciously getting news that are opposite to their own preferences/opinions, and there are not that many news outlets that can always provide unbiased information or both sides of the coin.’

#515, Hong Kong

‘Main lesson of this course is that we should be a bit more skeptical and critical about the information rather than blindly believe everything. I need to be aware that what is portrayed in the news that we receive from a news organization could be different from the truth.’

#554, India

‘I also made the same mistake and was confused and I didn’t realize that the sources need to be independent, but now I know.’

#863, USA

4.2. Identifying original source of information

Learners seek original and reliable sources of information when reading news:

‘... providing links is an excellent idea as it provides the reader with the opportunity to review the sources used for the article. This may allow me to view and reflect upon the original sources myself without having to sift through any misrepresentation, bias or ulterior motives which may have crept into the article.’

#66, Canada

‘Well, from my point of view, no one can account for the importance of providing links for the press releases, by this way, we can verify the information as well as view the information from a more objective perspective.’

#175, China

‘The key word in this discussion is “should”; Yes, journalists should check their sources; however, the reader should also check their sources.’

#815, USA

4.3 Taking alternative sources of news

Learners read a variety of sources for news and make comparisons or syntheses of the information retrieved:

‘I used a news aggregation app called Flipboard every day. This kind of aggregation allows us to follow topics of our choosing and get news/coverage from many sources. The algorithm behind is to tailor your consumption on topics you are “interested in” only. We may then follow major news outlets around the world. We no longer need to be confined to the editorial choices of one or a few outlets.’

#520, Hong Kong

‘As a journalist, I do in fact use social media significantly... I did a story about the tuition strikes in California. I was able to follow the most active strikers and contacted them for quotes. In the past, there were so many barriers for a journalist to get a quote whether it be geographical barriers or just the inability to find the people who care about the topic.’

#870, USA

‘I subscribed to both domestic news sources and foreign ones. Just reading 3 versions is enough to get the ideas and perspectives.’

#880, USA

4.4 Impact on personal actions

Learners consider adopting a different approach to reading or disseminating news:

‘It relates to the recent occupation of parts of Hong Kong, but on a personal level it transformed my regard for Twitter from “foolish waste of time” to “important communication tool”. I could become involved, and share my own images and impressions. From regarding journalism and media as always being at some remove from my personal life, I came to regard it as something far more integral and integrating.’

#341, Hong Kong

‘Being able to critically evaluate all information you encounter (Facebook posts, news articles, emails, radio) is an important skill set. I teach my students to apply the Currency, Reliability, Authority and Point of View (C.R.A.P) test to information is a good way to develop this skill.’

#837, USA

‘My “take away” from the course so far is that I must scrutinize every element of every news story far more carefully than I have been in the habit of doing! And no skimming!!!’

#828, USA

5. Discussion

The MOOC learning environment offers an unprecedented possibility for learners from different countries to discuss topics of interest. The frequency of contributions to forum discussion is one of the core indications of participation in MOOCs [4]. As observed in forum activities, 156 active forum participants from the five countries contributed 398 postings, thoughtful reflections on verifying sources of information before sharing it. Discussions in the MOOC forum may often involve a minority of dominant participants [15], and 73.5 percent of
MOOCs are open to anyone who is interested in learning, and they can choose to study by going through the content materials and doing assessment tasks individually. However, participants can build competence that embraces both local and international practice through discussing among learners with diverse prior knowledge and experience. Although knowledge co-construction through the discussion forums occurs in small and episodic snatches [17], the topical discussion contributed by global learners from Canada, China, Hong Kong, India and the United States (51% of all postings) showed that participants can build an understanding of both local and international news consumer behaviour through posting and reading postings in the MOOC forum. While participants build a heightened awareness of news authenticity, direct and alternative sources of news provide good evidence of weighting or bias in news that can be judged by individuals. Although a single five-week MOOC has many limitations in making solid claims, participants around the world can continue to learn in MOOCs in the area. Further research is needed to explore the impact on learners of this kind of learning environment and how forum discussion can broaden conceptions and enrich learning experiences.

7. References


Session 19: Educational Foundations

Title: First Steps towards Addressing the Mental Health Crisis in Children: Identifying Current Practices, Enhancers and Inhibitors in School-Based Services
(Author: Denise R. Foley)

Title: A Case Study of the Effectiveness of Dialogic Reading to Enhance the Language Ability of a Young Child with Language Delay
(Authors: Hoi Ching Choi, Anthony Yuan)

Title: Hong Kong Parents’ Involvement in Early Childhood Education and Its Associations with Parent-child Relationship and Children’s Social Competence
(Authors: Yuk Hin Yiu, Sum Kwong Cheung)
First Steps towards Addressing the Mental Health Crisis in Children: Identifying Current Practices, Enhancers and Inhibitors in School-Based Services

Denise R. Foley
Worcester State University, United States of America

Abstract

One-in-five school-age children (8 to 12 million) in the US have moderate to severe emotional, behavioral and mental health problems [5]. This statistic is made even more alarming by the fact that as many as 75% of these youth do not receive any mental health services [4]. Sadly, on almost a daily basis, media accounts remind us of the tragic consequences of untreated and unmonitored mental health problems that begin in childhood and adolescence. Of the few youth who do receive mental health services, the vast majority do so in public schools [6].

The crisis in youth mental health has resulted in initiatives at both the federal and state levels in the US. What these initiatives provide are conceptual frameworks for prioritizing student mental health outcomes within school settings. What they lack, however, are research-based guidelines to implement and evaluate interventions or monitor mental health progress.

Response to Intervention (RTI) is a broad conceptual model, grounded in a preventative, early identification philosophy in which students receive a continuum of effective interventions in school [1]. Tier 1 services includes general instructional and behavioral policies which are typically effective for most students. Tier 2 includes targeted interventions, usually delivered to small groups of “at-risk” students (10-15%). Tier 3 interventions are for the 1-5% of students requiring intensive, individual supports. Essential elements of RTI include ongoing assessment: from universal screening at Tier 1 to frequent progress monitoring at Tiers 2 and 3.

Though, conceptually a broad, the application of and research on RTI has been quite narrow, with the vast majority focusing on remediating basic reading difficulties, typically oral reading fluency, in youngsters [3]. The literature on RTI for mental and behavioral health is generally limited to descriptions of suggested elements for Tier 1, 2 and 3 interventions. Unlike the extensive literature on academic progress, there are no established, agreed-upon guidelines on how to progress monitor Tier 1, Tier 2 or Tier 3 mental and behavioral health interventions in PreK-12 schools [2]. Similarly they are no guidelines on how to measure “responsiveness” to mental health interventions [7]. In other words, there are recommendations for what to do, but no guidelines for how to do it.

This presentation describes the initial results of a study conducted with over 175 school-based mental-health service providers regarding their current practices, and local enhancers and inhibitors to providing multi-tiered mental and behavioral health supports. Related practices in systematic screening, providing and evaluating effective interventions, as well as, monitoring mental health across time and settings will be shared.
References


A Case Study of the Effectiveness of Dialogic Reading to Enhance the Language Ability of a Young Child with Language Delay

Hoi Ching Choi, Anthony Yuan
Hong Kong Baptist University, Hong Kong, China

Abstract

Early language skills play an important role in children’s language development [2]. It is found that children’s language development at the preschool stage is associated with their later academic success [1]. Language delay is considered as one of the common developmental problems of children. Language delay is also associated with difficulty in expressing themselves in writing and talking. To help the language delay children, it is important to identify effective strategies to promote their language abilities. “Dialogic Reading is considered as an effective strategy. This reading technique is an interactive storybook reading method. The aim is to improve children’s language abilities by encouraging children to participate in the story reading [3].” The purpose of this case study was to investigate the effectiveness of the dialogic reading method in enhancing language and literacy abilities of children with language delay in Hong Kong.

The participants of this case study were a four-year old boy and his mother. The boy was diagnosed with language delay. The dialogic reading program consisted of 7 sessions and each session lasted for 30-35 minutes. In each session, the researcher read a story book with the child using the dialogic reading techniques. The researcher prompted the child to talk about the story contents by using five types of prompts: completion, recall, open-ended, wh-prompts and distancing prompts. Then, the researcher would evaluate and expand the child’s response by adding new information. At last, the researcher would invite the child to repeat the sentences with given new information. The child was pre- and post-tested on different areas including: 1) receptive language ability 2) expressive language ability; 3) narrative ability and 4) word reading. Also, the child’s mother was interviewed before and after the dialogic reading sessions. The information collected from the interview was used to evaluate the effectiveness of dialogic reading.

The post-test showed improvement of the child in receptive language, expressive language, narrative ability and word reading when compared with the pre-test. The child had displayed improvement in the above language abilities since he could correctly point to the pictures which showed the objects named by the researcher. He could use the number of nouns 5 times more than the number used before dialogic reading. He could also use simple sentences to express his ideas. In addition, the child was observed to take more initiative to ask and respond to questions. The attention span of the child increased.

The results demonstrated that dialogic reading could help to improve the language skills in various area such as: 1) receptive language ability 2) expressive language ability; 3) narrative ability and 4) word reading. It is preferably to apply the dialogic reading as early as possible, for example at the kindergarten stage. Dialogic reading gives a chance for children and adults to talk to each others. The children would enjoy dialogic reading more than traditional reading as long as the adults follow the children’s interests during the dialogic reading sessions.
References


Family and school play parallel and complementary roles in children’s early learning. Collaboration between parents and teachers is therefore important. On one hand, it can let parents understand more how to create a home environment that is conducive to children’s different aspects of learning. On other hand, it can help teachers grasp a better understanding of the learning needs of individual children. According to Epstein [1], parental involvement in education can take place in different forms, including creating positive living conditions to lay the foundation for learning (parenting), communicating with school (communicating), volunteering at school activities (volunteering), helping children to learn at home (learning at home), participating in decisions of the school (decision-making), and utilizing community resources to support children’s learning (collaborating with the community). Several past studies [2] have provided empirical support for the benefits of parental involvement on Western children’s academic and social competence. Nevertheless, little is known about the patterns of parental involvement in early childhood education in Hong Kong and their effects. To fill the research gaps, this study aimed to: (1) examine the extent to which different types of involvement were favored by Hong Kong parents with young children; and (2) investigate the relationships of Hong Kong parents’ involvement in education to parent-child relationship and children’s social competence.

A mixed-method approach was adopted to collect data for the present study. First, 180 Hong Kong parents with children aged three to six were recruited using convenience sampling to complete a questionnaire. The questionnaire consisted of three scales, including one scale (10 items) about the extent to which parents favored five types of parental involvement in education proposed by Epstein [1] (parenting, learning at home, communicating, volunteering, and decision-making), one scale (11 items) about the quality of their parent-child relationship, and one scale (13 items) about the level of their young children’s social competence. Next, in-depth individual interviews were conducted with three of the parents from different socioeconomic backgrounds, so as to understand more deeply how and why some Hong Kong parents got involved in their young children’s education, as well as their perceived effects of such involvement.

As shown in the questionnaires, Hong Kong parents generally favored parental involvement in early childhood education, with “learning at home” and “volunteering” being rated as the highest and “decision-making” being rated as the lowest. Bivariate correlation analyses found that the more parents favored involvement in education, the better their parent-child relationship and children’s social competence. Looking more closely, parent-child relationship had the greatest correlation with “parenting”, whereas children’s social competence showed the strongest linkage with “volunteering”. From the interviews, it was further revealed that parents were aware of the benefits of their involvement in children’s education. The types of involvement were affected
by a number of factors, such as their work commitment and their attitudes towards different types of home-school activities.

The above findings suggest that the benefits of parental involvement found in Western studies are, to certain extent, also evident in Hong Kong early childhood education settings. Perhaps because of the achievement-oriented societal culture, Hong Kong parents favored certain types of involvement (e.g., learning at home) over the others, though all five types of involvement under investigation were linked with positive outcomes. It is therefore essential to raise Hong Kong parents’ awareness of the importance of different types of involvement in education. Meanwhile, kindergartens are recommended to provide parents with more opportunities to get involved in their children’s learning. Future studies can use a larger sample and explore the factors affecting Hong Kong parents’ attitude towards different types of involvement in early childhood education.

References


Session 20:  Learning / Teaching Methodologies and Assessment

Title: Positive Beginnings and Endings in the Classroom
(Authors: Hoda Mostafa, Maha Bali)

Title: Assessing the Learning Retention of one of the Physics Concepts among Undergraduate Physics Students: A Case Study
(Author: Mitra Shojania Feizabadi)

Title: Development of an On-line Dynamic Assessment for Improving Students’ Comprehension of Science Text
(Author: Jing-Ru Wang)

Title: What is the Problem?: Barriers to Effective Facilitation in a Problembased Learning Classroom
(Authors: Anthony Leow, Michael Koh, Ying Hwee Chua)
Positive Beginnings and Endings in the Classroom

Hoda Mostafa, Maha Bali
American University in Cairo, Egypt

Abstract

Making learning memorable can be challenging in today’s learning environment and “beginnings and endings” of courses and classes can help engage students, focus learning and improve meaning-making and transfer especially with students embarking on their first years at college. By exploring a selection of targeted “beginnings and endings” approaches (I-FOCUS), faculty can plan for learning experiences and memory-making that extend beyond the classroom by introducing simple, high-impact low-risk activities. This session will share the author’s experience with classroom-tested activities from their freshman classrooms at the American University in Cairo.

1. Scope

This session will focus on introducing faculty to methods by which they can intentionally plan for effective and engaging beginnings and endings for individual classes and courses. Attendees will learn about how to start and end class with a sample of teacher-tested icebreakers, focusing activities, reflective exercises and formative assessments that enhance learning experiences. This session will also share suggestions on how to start and end semester, help students make meaningful connections within the course and take away memorable learning moments that transfer to other courses and to their careers.

2. Objective and Motivation

1. This session will aim to answer the following questions:
   • Why are the beginnings and endings of class sessions and semester so important to learning and creating a positive classroom environment? How can these be considered formative assessments?
   • How can teachers plan effectively to address these important learning opportunities?
   • What kind of approaches can teachers use to achieve effective beginnings and endings?

   I-FOCUS: A selection of approaches will be briefly discussed with a few examples that can be used for beginnings and endings of semester as well as individual classes.

   o Inspire: engage student interest with videos that deliver a learning prompt.

   o Frame and Focus: set the stage for learning with human sociograms.

   o Orient: help students become familiar with course “big questions” and learning objectives and each other with vision boards, creative CVs, failure journals.

   o Connect: transfer to course work, career and life with letters to future students

   o Understand: make meaning through reflection with reflective course summaries and guided reflection.

   o Surprise and Motivate: encourage students to question assumptions with “Most astounding fact” activity.

2. The session will engage audience in planning for a simple beginning or ending to their course or lesson through a short interactive exercise.

3. The speakers have presented a variation of this proposed in workshop format and are currently involved in various faculty development activities at the American University in Cairo. The use of the techniques suggested by the presenters can enrich any classroom environment and help highlight key learning moments for both the student and teacher.
Assessing the Learning Retention of one of the Physics Concepts among Undergraduate Physics Students: A Case Study

Mitra Shojania Feizabadi

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U.S.A.

Abstract

The learning retention of one of the physics concepts is assessed through direct testing two years in a row among undergraduate physics students was fully investigated in this paper. The outcomes of this case study indicate that, as students progress from lower level to upper level courses in the physics program, they will reach a better understanding related to the tested concept. This is significant as it shows a learning intervention in upper level courses, stressing that the modification and application of previously learned concepts can lead to longer lasting learning. This clarifies that connectivity among undergraduate physics courses is one of the key factors for establishing a better understanding of the physics concepts that students learn in the program.

1. Introduction

In undergraduate science programs, one of the effective ways to assess students’ learning outcomes is to conduct pre/post assessment tests. This method can evaluate students’ learning in a specific course [1, 2].

This study goes beyond a course assessment and takes a closer look at the way in which the students’ learning can be affected as they progress from lower level to upper level courses in the physics program.

The specific goal of this study is to assess learning retention among undergraduate physics students.

The motivation for designing and conducting the assessment discussed in this work stemmed from our realization that students in the Modern Physics Course express less familiarity to a general definition of work as the integral over force multiplied by the infinitesimal element of displacement, and more in understanding that the work is calculated by the direct multiplication of force by distance. After a year of taking the principles of Physics lecture and the laboratory, it seemed that students, in specific cases, understood the definition of work when the force was constant and the work could be simply expressed by the multiplication of force by distance. It could be observed that they understood no clear distinction between forces that are constant and those that may vary by distance.

We learned, from this observed difficulty, that students usually express their understanding in the manner explained above, and, in order to gain a better understanding of students’ learning retention as they progress in the program, we designed the method explained below, in which the long lasting learning of students was assessed in a simple approach.

2. Methodology

An assessment test of three questions was structured; the questions are listed below. The students’ performance was evaluated twice during the undergraduate program: the first time one year after taking the introductory level course of the principle of physics, and the second time after two years of taking this course. The students were tested on the first day of classes. No time restriction was implemented for students to answer to questions; however, in each round of testing, students were able to complete the test in fewer than 30 minutes.

2.1. Ethical Considerations

We took the following steps to fulfill requirements related to ethical considerations and the regulations set in the Family Educational Rights and Privacy Act: The test was conducted anonymously. No names, student identification numbers, or personal information of any kind was collected along with this test. The assessment test did not have any bearing on the final grades of any course. The test was conducted on paper. The faculty member who conducted and collected the test, was the only member with access to the test results. It should be noted that the students’ identifications were not even disclosed to the faculty member. The data was collected and analyzed as a whole. The results have been reported in the format of mean+/- SEM. Analysis of the results of individual students was not a factor in this study.
Table 1. Scoring Rubric

<table>
<thead>
<tr>
<th>Question</th>
<th>Distribution of Scores</th>
<th>Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>- The work was expressed as integral over force. dx.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>- The work was expressed as f.d. However, it was identified that this can’t be implemented in all cases.</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>- The work was expressed as f.d. However, it was identified that this can be implemented in all cases.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>- The work was identified as the multiplication of weight by distance. It was identified that this can’t be implemented in all cases.</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>- The work was identified as some correlation between force and distance, but not in a correct format</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- Wrong/no answer</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>- The work was corrected calculated with the result of 1/2kx²</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>- The approach was correct, but the integral was not correctly calculated</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>- The work was calculated based on answer III of question 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>- The force was not recognized correctly for the further procedure</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>- Some correct explanations</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- No/wrong answer</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>- The potential energy was expressed correctly and was consistent with work</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>- The potential was correct but not consistent with the work that the student expressed in Q2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>- The potential was not correct but the student knew that it should be equal to the work</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>- The students identified that the potential energy is not equal to the gravitational potential energy and depends on the displacement and the spring stiffness. However, they couldn’t express the correct format of that</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>- Some possible correct explanations</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- No/wrong answer</td>
<td>0</td>
</tr>
</tbody>
</table>

2.2. Assessment Test

In our approach, we developed an assessment test that contains three questions. In the first question, students were asked to explain the way in which the work done on an object can be calculated. In the second part of the question, we asked whether the method that they explained can be implemented in all physical situations, and if not, we asked them to provide an example.

The second question asked students to assume that one end of a spring with the stiffness $k$ is fixed to a wall, and an object with a mass $M$ is pushing or pulling on the other end of the spring in such a way that the object displaced from $x=x_1$ to $x=x_2$. Then the students were asked to calculate the work done on the object. In this question, we asked students to express the associated potential energy stored in the system.

2.3. Scoring Rubric

The rubric expressed in table 1 was then developed to provide us with a frame that can lead to consistent grading. The rubric included above was constructed in order to grade and evaluate the students’ answers for each question. The total of 5 points was considered for each question and the distribution of the points for each question has been reflected in this rubric.

3. Analysis

Data Analysis: based on the constructed rubric, we graded all questions answered by the students. The average and standard deviation of mean of the collected data were then calculated. The difference between the average obtained for each of the questions was compared statistically by t-test between a) the same students in the second year and then in the third year of the undergraduate physics program, and b) between two groups of students who entered the second year, for two years in a row.

The students in group I - sophomores who tested one year after taking principle of physics - had the average and SEM of 3.2+/-0.25 for the first question, 1.6+/-0.25 for the second question, and 1.73+/-0.35 in the third question. It can be seen that one year after taking the principle of physics, students gained 64% of the maximum score in the first question, and 34% in the second and the third questions. Group III, the new group of sophomore students who were tested in the same conditions, one year after taking principle of physics, had a very comparable set of scores as compared with the first group. They earned 2.7+/-0.2, 1.83+/-0.33, 1.38+/-0.38 in questions 1, 2, and 3 consequently. The results of statistical analysis expressed that the average score in these three
questions are not statistically significant between the first and the second group of sophomore students who were tested at the beginning of the Modern Physics class (see Figure 1). In contrast, when the first group of students was re-tested two years after taking Principle of physics, their obtained average scores were: 4+/-0.25 for the first question, 2.93+/-0.47 for the second question, and 2+/-0.5 for the third question. As we compare the average scores between scores obtained one year and two years after principle of physics, it can be observed that in the third year, they gained 80% of the total score in question 1 and 60% of the maximum score in question 2. The obtained average scores measured in the second and the third year for this group of students is statistically significantly different. However, no significant change can be observed in the average score for the third question. The histograms of the measurements have been expressed in Figure 2.

Figure 1: Horizontal: Questions 1, 2, and 3. Vertical: Average grade. Number of students in the first group (dark blue): N1=22. Number of students in the second group (orange): N2=18. The averages are not statistically different: Q1 (P-value) =0.14, Q2 (P-value) = 0.62, Q3 (P-value) = 0.56. The threshold for the significance level was P-value<0.05.

Figure 2: Horizontal: Questions 1, 2, and 3. Vertical: Average grade. Number of students in the first group (dark blue): N1=22. Number of students in the second group (orange): N2=16. The differences in Q1 and Q2 are statistically significant: Q1 (P-value) = 0.03, Q2 (P-value) = 0.01, Q3 (P-value) =0.62. The threshold for the significance level was P-value<0.05.

However, they learned about the application of the concept that they had learned before. During the sophomore course, students figured out that to learn the new concepts, some of the previously learned concepts needed to be modified. They learned that the simple version of the concept cannot be properly utilized for more advanced materials. It seems that a learning intervention during the Modern physics course stressing the modification and application of previously learned concepts can be lead to longer lasting learning.

One suggested course of action can be to map between physics concepts that are learned across the courses and associated laboratories to better clarify the connections for students. To further investigate the correlation between learning retention and learning intervention, we have a plan to collect more data in this area and make a stronger link among courses.

4. Conclusion

Our assessment approach was an approach designed to be implemented among a small group of learners. As we monitored the dynamic of learning in this study, we evaluated the learning retention of students one year and, consequently, two years after learning a specific concept of physics.

We hypothesized that, two years after learning that specific concept of physics, and perhaps with less direct practice, the students’ learning retention should not be significant. However, the obtained results indicate the opposite. Based on the results, more establishment can be identified related to the tested concept. One year after learning the materials related to work, students didn’t go through an extensive review of the materials, or even solve direct problems related to the concept of “work,” during the course of Modern Physics.

6. Acknowledgment

This work has received the review and approval of the office of Institutional Research Board of Seton Hall University.

7. References

Development of an On-line Dynamic Assessment for Improving Students’ Comprehension of Science Text

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Abstract

The NRC (2000) claimed that assessment methods must change to support learning potential, especially in constructivist-oriented approaches. Dynamic assessment (DA), one such assessment-as-learning approach that serves as an alternative to the accountability orientation, integrates teaching and assessment and seeks to identify the developmental trajectory for students and potential factors of achievements.

This article reports on the development of an online dynamic approach for assessing and improving students’ reading comprehension of science texts—The Dynamic Assessment for Reading Comprehension of Science Text (DARCST). The DARCST blended assessment and intervention into a holistic learning task for grade 5 and 6 students that takes the form of graduated prompt approach against the criteria of reading comprehension of science text. Each cluster of items in the DARCST incorporated a unit stimulus (textual material with illustration), follow-up items, and a series of instructional prompts associated with each item and targeted reading comprehension component.

The research study involved the two steps: The development of the DARCST and the validation of the instrument DARCST. The IRT analysis indicated the DARCST was applicable for most students with a wide range of reading abilities. Based on the acceptable psychometrics and students’ perceptions, the DARCST appears to be highly appropriate for use in middle year science programs where enhanced science reading is a goal.

1. Introduction

The global information world has increased the accessibility, variety, and variation of information to anyone with a computer, Internet access, and a browser. Reading opens a window to this world—one where critical reading about new scientific findings in popular media and being able to make logical inferences independently is crucial to broadening one’s perspectives, serve useful purposes in citizens’ lives, and enhance capacity to know what to believe and do. Yet, many college students who had mastered word-reading skills still had difficulty comprehending science text [1]. The barriers to reading science text imply that students likely lacked explicit instruction about science reading in their normal science classrooms, which results in many young people being unprepared for the challenges of a technological work environment and digital information age—thereby being science-illiterate citizens. Therefore, this study explored the following research questions:
1. What is the quality of the DARCST in terms of validity, reliability, item difficulty, and reliability?
2. What patterns of growth trends emerge as a result of DARCST across levels of initial reading ability?

2. Methods

This two-part study aimed to develop, validate, and verify a dynamic assessment of science text reading comprehension. Taiwanese Grades 5 and 6 students were the subjects selected to understand scientific texts and to document the quality and features of their science reading performance.

2.1. Part 1. Development of the DARCST

Development of the DARCST was based on a learner-centered environment where opportunities for feedback and revision and what is assessed were consistent with the learning goals. Its goal was to raise students’ comprehension of science text. The dimensions of DARCST were based on the research foundations of the reading comprehension of science text (RCST) instrument [2], in which the four components of reading comprehension were identified as (a) detecting the main idea of the text, (b) reasoning from textual information, (c) generating inferences from the text, and (d) understanding scientific vocabulary. Detecting refers to the ability to find key ideas. Reasoning includes the ability to identify methods of investigation, analysis, and comparison of textual information. Generating involves the ability to extract textual information to clarify meaning and form explanations, which also involves making judgments, predictions, and evaluations. Understanding means conceptual understanding of the key concept labels (words) in the text. Each cluster of items in the DARCST incorporated a unit stimulus (textual material with illustration) and follow-up items.
assessing the four science comprehension components applied to the stimulus materials.

The unit stimuli were converted to the DA approach by adding a series of instructional prompts (IPs) associated with each item and a targeted reading comprehension component. The 400–500 word passages with one or two illustrations were written with a bottom-up structure in which the concrete phenomena or lower-order concepts are presented prior to higher-order, more abstract concepts. Linkages and extensions were presented after terms were introduced. There was a bar on the right side of the text for re-reading and an icon (▲) at the bottom of the screen to activate an oral reading of the passage. Students could click the bar to trace the text for re-reading or click the icon to listen to the text. Although the text topics covered physics, biology, and earth science, not all of the content was included in the Taiwanese elementary school curricula. Thus, the impact of the school science curriculum on students’ test performance was not the focus of the DARCST; it was considered important that the teachers realized that this DA was not checking on their teaching.

The IPs were designed to help students’ monitor their understanding of the statements in each item while using the appropriate reading strategy and generating correct answers. All items were written in Chinese and formatted as multiple-choice questions requiring respondents to select one answer from a list of four options. Each item was followed by three sequential IPs: IP1 rephrased the question in an oral form, IP2 showed the reading strategy, and IP3 presented the correct answer derived from the reading strategy. Students selected and clicked on an option to submit it. If the choice was wrong, it was marked with a red line and the first IP (hint) appeared on the right side of the screen. Then students made a second choice. If the second choice was wrong, it was marked with a second red line and the second IP (illustration of the appropriate strategy) appeared. Then students made a third choice. If the third choice was wrong, it was marked with a third red line and the third IP (illustrated correct choice) appeared.

When the choice is correct, the system automatically moves to the next item that considers another of the three remaining science reading components. While answering the question, students can review the text by clicking the bar for re-reading or the icon for an oral reading. After finishing the four sets of test items for the unit stimulus text, an assessment report is presented on the screen with the results of the reading performance, time spent reading the text and items, number of IPs used for each item, overall diagnostic results, and supportive suggestions for each comprehension component. The initial version of the DARCST involved 14 text units with 73 follow-up items and 52 IPs.

2.2. Part 2. Validation of the DARCST

2.2.1. Student Samples. There were three groups of students from the southern part of Taiwan. The first group was for the pilot study; their responses to the initial draft of the DARCST were used to screen the acceptable items. The second group was for the formal administration to explore the assumptions, discrimination, and internal consistency of each item. The third group was for the field test, which explored the growth pattern of reading comprehension with the on-line DARCST and perceptions of the assessment approach. All of the students spoke Mandarin within the school setting; they were either native Chinese or Taiwanese speakers. All of the students’ parents signed an informed consent for participation before the research study.

Convenience sampling across five levels of urbanization (highly urbanized, moderately urbanized, agricultural, newly developing, remote areas) was used for the pilot study. The sample consisted of 314 students: Grade 5 (n = 94) and Grade 6 (n = 220), males (n = 162) and females (n = 154). For the formal test administration, a probability-proportional-to-size (PPS) sampling was used to improve accuracy by concentrating the sample on areas with a large number of schools and school populations having the greatest impact on population estimates. The number of schools randomly selected reflected the proportion of 10 elementary schools in the three school districts in the southern part of Taiwan; 7 schools were from Kaohsiung city and 3 schools were from Pingtung county. Each school provided one class of Grade 5 and one class of Grade 6, and all students in those classes were administered the DARCST. The total number of students was 480 (253 males, 227 females). Among these 10 schools, 5 were randomly selected for test–retest reliability at 2-week intervals. Finally, convenience sampling was applied to the third group of students in which 213 (99 males, 114 females) Grade 5 students were selected for field testing. In order to explore the growth patterns of learning to read science texts, we analyzed the interrelationships between dynamic assessments and levels of students’ reading abilities. Using results from the initial assessment of the DARCST, the students were divided into three levels of reading abilities at the initial stage, the top 27% of the class was assigned to a high-level group, the bottom 27% was assigned to a low-level group, and the remaining 46% was assigned to a middle-level group. The DARCST results of these reading comprehension groups were used to establish discriminate validity and to document what learning patterns emerged as results of DARCST across levels of initial reading ability and possible factors related to students’ learning outcomes.
2.2.2. Validation Procedures. The initial DARCST was validated and revised by a panel of four experts based on two rules to establish construct validity. The experts were asked to determine if (a) the descriptions of each stimulus text, items, and IPs were correct, clear, and understandable; and (b) the statement of each item and IP matched the reading comprehension component defined. Passages, items, and IPs identified to be problematic were revised to address and incorporate the experts’ suggestions. This round of deliberations produced the preliminary DARCST.

2.2.3. Pilot Study. The preliminary DARCST was administered to 314 Grades 5–6 students. Their responses were used to explore the discrimination and internal consistency of each item. Problematic items were revised based on their responses and the difficulty and discrimination indices. Four of the 73 items with discrimination indices less than 0.2 were judged to be unsatisfactory and were deleted. The remaining 69 items were distributed across the 14 stimulus passages with 3 to 7 items per passage. The passages and distributed items were validated again by the same panel of experts regarding clarity and understanding by grade level. Considering the long duration of the original test (14 text units), the test was divided into two grade-specific versions based on the experts’ recommendations; the Grade 5 version contained six units of 28 items and the Grade 6 version contained six units of 33 items. Two units of 8 items were identified as common units for both versions; these units were administered to the second student sample, which allowed calibration of the equivalence across the versions and determination of item characteristics.

Half of the students from each grade were randomly selected as the subsamples for retest to explore test–retest reliability; the other half were assigned as the subsamples testing concurrent validity through taking the RCST (Authors, 2012). To avoid the instructional impact of IPs, the scoring procedure only considered students’ first choice: one point for correctly answered items and no points for incorrectly answered items. These student-response data were explored using item response theory (IRT) to determine the tests’ and items’ characteristics and discrimination between students’ ability to comprehend scientific text. There are two assumptions of IRT. First, a single latent trait accounts for all item covariances (unidimensionality). Respondent’s traits and item characteristics are referenced to the same scale that allows interpretation of the respondent’s ability with reference to the characteristics of test items. It also provides a theoretical justification for equating scores between tests. Second, relations between the latent trait and observed response have a specific form that can be presented as a logistic curve graph illustrating two variables of the measurement: discrimination and difficulty. Students’ responses were analyzed using PASW Statistics 18.0 for Windows software to examine the psychometric characteristics of the two versions in terms of stability (test–retest reliability coefficient), internal consistency (Cronbach α coefficient), internal structure of the test (how the different components of the test are related), discrimination indices, and difficulty indices [3]. Considering the independence of items within a testlet, SCORIGHT 2.0 was used to examine the size of testlet effects in the DARCST assessment and explore if the size depends on type of passage.

3. Results

In this section, I report the psychometrics for the DARCST including unidimensionality, validation and reliability, difficulty and discrimination.

3.1. Unidimensionality

The dataset from the pilot study was first explored for the unidimensionality assumption to justify further analyses. This assumption was supported; the largest eigenvalue of the correlation matrix for both versions was over two times larger than the second largest eigenvalue (Grade 5 = 3.69, Grade 6 = 3.30), and the second largest eigenvalue was hardly distinguishable from the smaller eigenvalues. de Ayala [2] suggested that a ratio of eigenvalues larger than 2.0 supports the unidimensionality assumption[1]. Thus, the DARCST test was assumed to target a single cognitive process.

3.2. Validation and Reliability

The expert panel judged the items to measure reading comprehension of the stimulus texts; therefore, the construct validity was reasonable. Concurrent validity of the DARCST tests was explored with correlations to an established measure of the outcome variable (i.e., reading comprehension with RCST) using a simple correlation. These analyses indicated moderate to high correlations between the two datasets for the instruments (Grade 5 = .75, Grade 6 = .67). These correlations suggest that the measurement of the two instruments were associated. Each pair of the four components (detecting the main idea of the textual information, reasoning from textual information, generating inferences from the text, and understanding scientific vocabulary) between the two instruments were also significantly (p < .01) associated (Grade 5 = 30−.65, Grade 6 = .21−.47). The test–retest correlations revealed that the test was stable over time (Grade 5 = .84, Grade 6 = 0.85). This evidence supports the
4. Difficulty and Discrimination

Estimated discrimination parameters for the DARST items ranged from 0.38 to 2.02 with a mean of 1.11, which is generally acceptable. Estimated difficulty parameters for the items of the DARCST ranged from -1.49 to 2.22 with a mean of 0.52, indicating that the test was somewhat difficult for the students at the medium points [2]. The probability of guessing the correct answer for a multiple-choice item (ci) was .23 for both versions. IRT attributes for the eight common items were: slope parameters (a) range 0.51–1.82 with a mean of 0.97, location parameters (b) range -0.28–1.69 with a mean of 0.85, and guessing parameters (c) range .15–.30 with a mean of .23. These results indicate that the common items had good discrimination power and had difficulty appropriate for the majority of students in each grade. The variance of testlet effects of the 14 stimulus units ranged from 0.20 to 0.55 with a mean of 0.37, which means there were small testlet effects among the 14 units that could be ignored [6].

The test information function (TIF) showed that more information was available on the midpoint and upper level of the score scale to make an accurate parameter estimate than available at the lower point of the distribution (see Figure 1). The amount of information decreases as the ability level moved toward the lower end of the score range. The TIF curve implies that the test was appropriate for most examinees whose ability ranged from approximately -1.08 to 3.0 where more information about the parameter is known.

4. Conclusion and Implications

This study is unique because its innovative way of integrating a digital tool to build strong links between assessment and instruction—assessment as learning, and empirical support for the test psychometrics of the DARCST. First, the DARCST takes the form of a graduated-prompt approach against the criteria of reading comprehension on science text. When students encounter difficulty in reading items, DARCST provides them IPs using a graduated approach. Moreover, DARCST provides diagnostic results and recommendations for improving the four components of reading comprehension on science on a ‘just-in-time’ support in a unit of reading test. It blended assessment and instruction into one holistic learning task for Grades 5 and 6 students. applicable for most students with a wide range of reading ability.

The most promising findings of the current study were that, although students with middle- and high-initial reading ability outperformed students with low-initial reading ability, low readers showed stable and higher gains in DARCST relative to students with average- and high-initial reading ability. However, similar findings were found for Grade 7 students on mathematical problem solving [7]. This finding supports the emerging perspective based on the constructivist claim that most students possess the necessary abilities but need supportive environments reflective of their learning resources and some prior experiences on which to construct understanding of science.

It is important to recognize that reading comprehension involves recognizing words, understanding their meanings, and reasoning [4]. It is possible that low-level readers had limits of knowledge about the language of science—conceptual, procedural, and enterprise words that hindered their comprehension of science text. In addition, they likely had limited experience, difficulty remaining focused and recalling information from the text, limited auditory processing skills, and difficulty analyzing and thinking in visual images that create excess cognitive load for them while constructing meaning of the texts. The oral reading and IPs of the DARCST might help reduce cognitive load while reading the texts.

Yore et al. [8] proposed an interactive-constructive model of reading, which pointed out that when reading science text, readers interact with words, symbols, and genres in the text and then connect these to prior related knowledge and experiences so as to make sense of what they read. However, Vygostky [5] noted that processing printed text is very abstract, symbolic, and unlikely to receive elicit feedback from others. These cognitive weaknesses in understanding of science texts were addressed by the DACRCST by examining students’ comprehension of the text and offering assistance necessary to successful performance.

While reading science text, evaluating understanding and regulating effort and appropriate strategies are related to cognitive goals. DACRST provided immediate correction, crossing out incorrect choices the students had made and gradually providing regulating supports and scaffoldings (IPs) toward comprehension goals, helped them understand what reading strategies they were missing in the reading processes, and regulated reading skills and effort toward their comprehension goals.

Research and development in the area of online DA should continue to explore its applications to teacher education and teaching. Moreover, considerably more work will need to be done to determine how many dynamic tests on comprehension of science texts students should take to become independent readers.
5. References


What is the Problem?: Barriers to Effective Facilitation in a Problem-based Learning Classroom

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Abstract

Founded on the key pedagogy of Problem-Based Learning (PBL), it is critical that the lecturers at Republic Polytechnic (RP) are equipped with the knowledge and skills to effectively facilitate the learning of our students within a PBL environment. This is especially pertinent in the current educational landscape of Singapore where institutes of higher learning are intensifying their efforts to improve the standards of teaching and learning within their classrooms. While past research has focused on the attributes of effective facilitators in the PBL classroom, we argue that it is equally, if not more, important to understand what the barriers to good facilitation are. Through an analysis of data from the certification exercise in facilitation, the results suggest three key barriers that impeded the tutors’ facilitation and consequently precluded them from attaining their certificate in facilitation. This paper examines the three common barriers to effective facilitation in a PBL classroom and discusses possible ways to help PBL tutors mitigate these barriers.

1. Introduction

The effectiveness of student learning is contingent on the pedagogical competence of a teacher in a problem-based learning (PBL) classroom. To strengthen the dyadic relationship between teaching and learning in a PBL environment, one needs to study the factors influencing teachers’ facilitation skills. While past research has primarily focused on what good facilitation looks like in the PBL classroom [1], [2], we argue that it is equally, if not more, important to understand what the barriers to good facilitation are. The current study seeks to complement the findings of Goh [1] and Yang et al. [2] in providing a more inclusive account of PBL facilitation. Specifically, we seek to analyse and highlight the typical pedagogical shortcomings committed in the PBL classroom and suggest ways on how they can be overcome. To achieve this aim, we purposively sampled the candidates who have attempted but did not succeed in clearing their facilitation certification in 2015 (n=25).

Through the analysis of both quantitative and qualitative data from the feedback letters, the evidence suggests that the barriers were not the antithesis of the good facilitation practices highlighted in earlier research [1], [2]. Rather, these pedagogical impediments were multifaceted and range from pedagogical dissonance to a lack of awareness in students’ learning needs. Three key barriers emerged from the data and they can be classified under:
1. Prior Knowledge and Knowledge and Skill Acquisition
2. Facilitation and Scaffolding
3. Self-Directed Learning

2. Results

The data suggests that candidates faced difficulties in fostering the connections between students’ prior knowledge and the subject matter. Without providing the pedagogical bridges at critical junctures of the lesson, it is challenging for students to be intrinsically motivated in relating to the topic. Concurrently, the incongruent questioning techniques of the candidates did little to promote critical thinking and help students connect their ideas. Further, candidates do not seem to critically appraise their students’ responses and accept the responses at face value. This inevitably inhibited the extension of students’ learning and thus limiting the effectiveness of candidates’ facilitation. Student ownership of their learning was also often stymied by candidates who believed in retaining the locus of control in learning i.e., didactic teaching. Candidates’ failure to monitor students’ progress and providing them with the appropriate scaffolds in developing their own solutions also contributed to a breakdown in their lessons.

3. Conclusion

We suggest the following ways to overcome these common barriers that inhibits effective facilitation in a PBL classroom. First, students’ prior knowledge needs to be ascertained and appropriate scaffolds have to be deployed to help students...
connect their existing knowledge and new learning. Second, facilitators need to be cognisant of the centrality of using questions to drive learning in a PBL classroom and actively develop this critical skill in enhancing student learning. Third, facilitators need to develop an understanding of how to create the structure and processes within a PBL classroom to advance the actualisation of self-directed learners.

4. References


Session 21: Inclusive Education

Title: ASD – Not a Sentence of Life but a Way of Living
(Authors: Sandra Patricia Pereira, Tereza Ventura)

Title: Sovereignty through Partnership
(Author: Natashya Rice)

Title: Questioning the Identification Process of Young Gifted English Language Learners
(Author: Hoda Kilani)
ASD – Not a Sentence of Life but a Way of Living

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Abstract

This article integrates a case study in progress, being the first of a trilogy which aims to understand the role that a family, with their beliefs and perceptions, has in the development of their child’s potential. It is intended to promote a greater understanding of the family as an active subject in the definition of an action strategy. Processes and effects of the intervenients’ resilient action are described, when supporting the family reorganization, enhancing the acceptance of the diagnosis, rejecting it, however, as a life sentence, basing all of their intervention on unconditional love, in the celebration of a different child and the belief in his/her unlimited potential. This article contextualizes the child's problem; the preparatory phase traced by the parents; the outlined intervention model and the characterization of all the intervenients, including their perceptions and motivations. This phase was based on the qualitative method and semi-structured interviews and focus groups were used.

1. Introduction

The scientific community has taken a very dynamic attitude regarding the neurodevelopment disorders and all the underlying assumptions, having significant changes in the diagnostic classification of some of the most prevalent disorders in the world population. As a result of the clinical advances promoted by research and consequent and systematic reviews of diagnostic criteria, the American Psychiatric Association [1] presents autism as a complex neurodevelopment disorder that manifests itself with great variability in the intensity and in the form of symptomatology. Taking into account this variability, the denomination Autism Spectrum Disorders (ASD) was adopted, allowing a single categorization of the continuous diagnosis, adapted to each individual through the associated specifiers and deficits that best represent the heterogeneity of the behavioral phenotype of that individual.

This spectrum is portrayed as a behavioral and relational dysfunction that concomitantly presents persistent impairment in social communication and restricted, repetitive and stereotyped patterns of behavior, interests or activities [1,2]. Based on the perceptions of the studied family in this article and the method of intervention adopted by them, it is assumed, however, that autism, although having behavioral manifestations, is, in fact, a socio-relational disorder [3].

This disorder often appears accompanied by other comorbidities, such as sensory alterations [4], speech deficit [5], epilepsy [6] and neuromotor dysfunctions [7].

Etiology, although not completely described and confirmed in more than 80% of the cases, is assumed to be multifactorial, involving genetic, neurological and environmental causes.

The first clinical manifestations usually occur before 36 months of age, completing the diagnosis between the ages of 3 and 4, when the child is perfectly inserted in a social context where the expression of the symptomatology is more evident.

According to the data from the Center for Disease Control [8], the prevalence of the disease is 1/68, reaching 1.47% of the world’s population, being four times more frequent in males. In Portugal, an incidence of 1/1000 school-age children is estimated.

Given the aforementioned difficulty in defining etiology, several intervention models/programs are used, ranging from the most behavioral and structured approaches (ABA and TEACCH) to the most naturalistic or interactionist ones (Floortime and Son-Rise Program (SRP)). In this article, the SRP method is essentially approached, since it was the one that was chosen by the studied family, which best corresponded to their beliefs and expectations of the intervention.

2. Family, Mourning Process, Early Intervention

Assuming ASD as a socio-relational dysfunction, the family takes on a particular role since it represents one of the main socialization contexts, being the first mediator between the child and culture [9, 10, 11, 12]. Thus, it becomes fundamental to clarify the concept of family, the factors of imbalance and stress that interfere with him/her (the protective aspects), as well as the needs in his/her development.

Thus, the family, in the systemic and ecological adopted perspective, is presented as an open
interactional system, constituted by elements linked by a set of relationships, integrated in other subsystems, with which it develops, influencing and being influenced internally and externally in an ongoing process of development [9].

Thus, and after reviewing the reference literature, the diagnosis of ASD seems to present distinct, yet penetrating and bidirectional influences throughout the family, being necessary adjustments in the economic, social, recreational, domestic, affective, educational aspects, as well as in the family identity [13]. An effective and immediate multidisciplinary follow-up of the family is fundamental, capable of welcoming the diagnosis and a faster passage through the various phases of mourning, promoting reorganization, emotional adjustment and family health. [7,10,14] Despite the quality of the follow-up, the process of acceptance is time-consuming, since there is a need to mourn the idealized baby. The family needs to appeal to their emotional fertility, letting the real child be reborn in their imaginary, idealizing him/her and accepting him/her no matter the limitation or difference.

This capacity for reorganization and acceptance is significantly correlated with the resilience of each family, that is, with the capacity of self-regeneration, not allowing themselves to be destroyed by adversity, trying out strategies capable of overcoming challenges and promoting growth in critical moments [12,15]. The literature points out that factors such as knowledge about the child's problem and on the most effective strategies of action; a stable socio-economic level; the social support; a structured and supportive family environment, permeated by commitment and flexibility; high levels of communication and interaction; internal and external coping strategies; a positive outlook on life; and a family belief system are agents that promote the resilience of families of children with ASD [12].

A positive adaptation, permeated by optimism and acceptance, seems, as described in the literature, capable of promoting feelings of hope and control, fundamental to determine the quality of the parental relationship, the precocity of the intervention, as well as the family involvement in this process [2,3,11,12,13]. Given the specificity of the challenges presented in ASD, an early, immediate and intensive intervention is essential, since, no matter the scientific perspective and/or intervention program or adopted method, it is understood as one of the predictive success factors, being determinant to stimulate the children's developmental levels, enhancing their abilities and stimulating the neuroplasticity necessary to minimize the symptoms and acquire the skills [2,7,10,14,16].

3. Methodology

This article integrates a systemic case study, intended to analyze the family system of a child with ASD in its multiple dimensions, beliefs and perceptions.

It was adopted a qualitative methodology, based on the narrative of the facts and, with this methodological option, it was possible to highlight the importance of the individuals involved, as well as their beliefs, seeking to understand the problem of ASD and its comprehensiveness in the lives of those who experience and perceive it.

Taking into account the proposed objectives, semi-structured interviews and the focus group technique were defined as instruments of data collection, both of which were directed to all the individuals involved in the study, except for the child with ASD.

It was valued the researcher's interaction with the field and the importance of his/her subjective interpretation as an explicit part of the production of knowledge.

4. Characterization of the ASD Child

The child under study is male, born prematurely from induced labor at 36 weeks and 5 days, with 1950g and 45cm and will adopt the name G.

The decision to induce labor occurred at 35 weeks and was due to the obstetrician's suspicion that the umbilical cord artery could be permanently in systole, fearing that the baby was not growing, resulting from the possible impairment of the passing of nutrients and oxygen. In order to prepare a caesarean section, pulmonary maturation with corticoids was immediately performed.

Although he had shown since birth some different signs, as described below, the first diagnosis was presented at 9 months, describing an overall developmental delay with impairment in all evaluated areas. At the same time, the pediatrician presented his/her ASD suspicion being only confirmed at 32 months.

In addition to the aforementioned comorbidities, G also presents generalized hypotonia and an avoidant food intake disorder (does not eat solids) due to his oral hypersensitivity.

When writing this article, G was 34 months, with a great compromise in verbal and non-verbal communication and in social interaction, with inconsistent ocular contact and lack of interactive attention; he presents very restrictive interests, as well as repetitive and exclusive movements (stereotypies). He is methodical, shows little flexibility in his daily routines, as well as a discomfort in unpredictability and excessive sensory input.

4.1. From birth to diagnosis

As described previously, G was born from induced
The first manifestations began in the maternity when G presented episodes of myoclonus still in the incubator. In order to rule out any cerebral anomaly and/or lack of any nutrients, doctors chose to perform a transfontanel ultrasound and some blood tests. None of the exams presented significant changes, being explained to the parents that it could only be benign myoclonus.

At 3 months of age, his parents became concerned again when realizing that the baby was very apathetic; did not hold his head and had no gripping capacity. This concern consolidates between the 5th and the 9th month of age, when G still does not show any body control, especially in posture, static balance, movement and balance, beginning to reveal muscular hypotonia [7,18] with effective compromise in gross motor skills. Given these manifestations, the parents asked the pediatrician to suggest a physiatrist, who recommended physical therapy sessions three times a week. Concomitantly, the parents began to notice the absence of consistent and intentional eye contact [7,14], as well as the lack of interactive attention [7,14] and symbolic play. Their son seemed aloof, not revealing any empathy or interest in people [1,4,5,6,7,14,16]. They began to realize that his attention seemed only directed at some objects, shadows or lights. This aloofness was so evident that the parents began to suspect the possibility of deafness [7] and asked the pediatrician to indicate an otorhinolaryngologist. After some simple tests of immediate observation, the pediatrician realized that there was no physical reaction to the auditory stimuli promoted by people, although there was some responsiveness when the sound was produced by an object. Parallel to the referral to the otorhinolaryngologist, an ophthalmology appointment was requested in order to avoid any visual problem. Both tests revealed that there was no change in the results obtained.

Perceiving the difference of the child and without any diagnosis, the parents booked successive appointments with the pediatrician to talk about their doubts and present proof of what they thought were differences of development evidenced in their son. The pediatrician's initial attitude was to devalue the parents' complaints, trying to reassure them that the differences reported were the result of prematurity. The parents' perception was different and the medical explanation did not seem sufficient since the difference in the corrected age was minimal when comparing to the chronological age. Thus, they continued to do their own research, constantly seeking the support and guidance of the doctor in order to understand the possible screening. A change in the doctor's behavior was noticed, taking the position of a listener, trying to perceive the parents' complaints, not confirming or rejecting any of their suspicions.

The complaints that had previously been devalued, because they could be associated with prematurity, begin to be analyzed with another criterion after the pediatrician realized that they were perceived by everyone who lived with G, being also able to observe them in small rapid tests. Thus, at the age of 9 months, the pediatrician confirms that the baby had a psychomotor developmental delay. Several tests were performed including an MRI, a karyotype and a screening for Fragile X, none of which presented significant changes. At 11 months of age, the Griffiths Scale was completed by the specialist in rehabilitation and motor development, verifying that all evaluated areas were affected, presenting a development of 6 months of age.

At the parents' request, the pediatrician proceeded to refer G to Speech Therapy, since he did not present any verbal or non-verbal communication attempts [5,7,16,17] and also because of his rejection of solids, later perceived to be an avoidant food intake disorder [7]

At the age of 24 months, proposed by the parents, the referral was also made to Occupational Therapy, given the sensorial changes that became increasingly evident, and he began to do music therapy and swimming. Given the significant impairment in the area of socialization, suggested by the pediatrician, G started attending a day care center in order to promote this social skill.

At the same time, the pediatrician suspected ASD, which cannot be clearly established as a diagnosis given the child's age, but it was based on the coincidence of G's parents' narrative with the reports made by parents of children with ASD, when a retrospective of the development of the children is requested. After several clinical evaluations and after knowing the results of the several tests and genetic tests which confirmed a genetic change with chromosomal abnormalities (X1 deletion and duplication of 15), common to several children with ASD [7,19], the ASD diagnosis was established by the pediatrician at the age of 32 months. The definition of this diagnosis was quite controversial due to the fact that there was no consensus in the understanding of ASD among professionals, since the pediatrician and the psychomotor rehabilitation professional presented a broader view of the spectrum and the geneticist a more narrow perspective, understanding autism as a whole and not as a spectrum. The pediatrician and the psychomotor rehabilitation professional, after knowing the results of the various tests and taking into account the child's follow-up from birth, considered that G's phenotype fit with the duplication of chromosome 15, attesting its diagnosis. The fact that it is perceived, throughout the narrative of the facts, that all the concerns evidenced by these parents are described in the literature as being common to children with ASD,
allowed the parents to feel comfortable with the diagnosis, considering that, more important than the name given to the problem, was the quality of the intervention provided.

4.2. From the diagnosis to the intervention

The parents of children with ASD assume a primary role and a decisive influence on their intellectual and social development. It is important to understand the family's position in relation to the diagnosis of their child [9,10,12,13].

G was a much desired and idealized baby and upon him fell the most extraordinary expectations for the future. The confirmation of a delay in psychomotor development accompanied by the suspicion of an ASD was, as such, perfectly overwhelming, triggering a process of mourning that materialized in revolt and anguish. This devastating feeling was not about the diagnosis itself, but the dark prognosis, with signs of permanent dependence, and, with all the ability that science predicts is not within reach, with the certainty that their baby did not deserve to suffer.

Previously beliefs were shaken, discredited in the world and the faith questioned. A path of loneliness and disorientation began, in which the need for active acceptance was determinant, in the parents’ perception. They quickly realized that they had a different but equally fantastic son, and the sooner they accepted and prepared a plan of action, the better the results could come from that intervention. This attitude is described by Gallagher [13], who states that the variable perception, understanding and expectations depend on the educational background of each family and the family chose to believe that the only person who could determine the future of their child would be himself, being perfectly aware of their role and the benefits of early intervention.

The acceptance and tranquility did not always coexist. The anguish, fueled by uncertainty, continued to feel strongly driven by the lack of support and welcome. The lack of support, information and follow-up, are described by the family, along with the absence of an accurate diagnosis and the lack of clinical consensus in the perception of autistic problems, as the most striking stressors [14].

Since detecting the first signs of difference, this family has been the engine of the whole intervention, seeking information in the reference literature. Although the diagnosis is not closed, it was established and proven the existence of a delay of development, so there were therapies and strategies of action that, in the eyes of these parents, could benefit their child. The proposal of referral to occupational therapy and music therapy was the parents’ initiative, being the pediatrician in agreement. Notwithstanding the quality of pediatric follow-up, doctors seem to need more time, which is something that their child does not have, given the urgency of early stimulation of brain plasticity in order to form new connections and promote new skills [2,7,10,14,16].

Another stress factor revealed by the parents was the lack of an association in the community that promotes multidisciplinary follow-up with common objectives and lines of action, allowing the different professionals / therapists to rank the competences to be developed according to the child’s development.

The financial dimension is also a disturbing aspect among families facing such challenges, as expenditure is very significant and often one of the parents has to give up on his/her career to give support to the child [7,15]. In this family only the father continues his professional activity, being the mother granted a license, extendable for 4 years, to assist the handicapped child. This Social Security support, even implying a very significant reduction of the available monthly income, is fundamental to the balance of the family budget. The redefinition of the financial condition of this family forced the sacrifice of the privileges of the couple, directing the management of the resources for the therapies and intervention programs that they consider more suited to their needs.

Regardless the daily challenges, in the perception of these parents, this son is much more than any child they could have dreamed for them; with him they experienced the greatest pains, but also the deepest joys; with him they learned to value simplicity and tolerance; they have become more patient, more controlled, and more empathic. This ability to transform vulnerability into regenerative power, allowing relationships to strengthen in adversity, is described by Gallagher [13] and Peniagua [7] as an ability of highly cohesive and structured families in which their elements reveal high levels of resilience, self-esteem and self-determination. In this couple’s perception, the family support, small accomplishments, the ability to recognize possibilities where others viewed disabilities and a deep belief in the unlimited potential of their child appear to have been factors that promoted resilience.

The certainty that they could do more, better and different has been the impeller of this family who, even finding victories in the various therapies that their son benefited, felt that they did not translate this into acquired skills. Thus, after further research, this family has found the one that, in their perception and in accordance with the principles it advocates, is the right intervention program for them and their son - The SRP.

The belief in the unlimited potential of the child; the focus on creating bonds and spontaneous relationships; the importance of motivation instead of repetition; the appreciation of the repetitive and exclusive movements of the child; the perception that the child can evolve in
an adequate environment and the precedence of the human interaction on the academic competences were the core principles of the SRP that allowed an immediate identification of these parents with this model of treatment.

5. The Son-Rise Program (SRP)

In addition to the aforementioned, the SRP is an intervention model that aggregates the biomedical and educational approaches in a symbiosis that is completed with the intervention of the families [20]. It understands autism as a difficulty in connection and social interaction, in which the behavioral impairments are perceived as attempts by the child to preserve his/her sensory, motor and cognitive balance in a world that they do not yet understand. It began in the 1970’s when Barry and Samahria Kaufman did not resign themselves to the prognosis associated with their child's severe autism diagnosis (Raun Kaufman) and developed their own home-based approach to affectivity, acceptance, motivation and belief in their child's potential. Through the *joining* technique, they attempted to create a connection that would allow them to rescue the child from his/her solitary world, giving him/her control and the possibility to manage his/her timings in a sensory controlled and predictable space. After three and a half years of intensive work, Raun, who had been assessed as having an IQ <30, recovered completely from autism, developing a neurotypical development. He completed the Biomedical Ethics course and is currently the CEO of the Autism Treatment Center of America, founded in 1983 by his parents.

This method is intended to enable parents to take charge of the intervention, transmitting them the confidence they place in the development of children and showing them that autism does not have to be a life sentence.

The first step is to train the parents in 5-day courses, welcoming them, encouraging them to appreciate the difference of their child and to believe in their abilities. At the same time, parents are taught to use the educational, attitudinal principles, techniques, and tools that make them the most effective educators of their children. They are also confronted with the need to create a playroom that promotes a great learning environment, great for the sensory processing and where inputs are controlled and diminished.

During this course, the program offers several treatment options, where the intensive home programs (40 to 56 hours per week) seem to present more expressive success rates [21].

Since this is a 1:1 intervention, in sessions lasting no more than two hours, there is a need to co-opt a large number of volunteers who are guided by the same principles and work for clear and common goals. As such, the quality of the selection and training of these facilitators is decisive for the success of the intervention and should be judicious processes that allow finding an efficient and effective team.

Commitment, enthusiasm, energy, celebration, creativity, flexibility and persistence are basic and inseparable concepts of the SRP, being predictive of involvement, connection, and success [3].

6. The home intervention plan

The decision to attend the initial course of the SRP, taught in the USA, was accompanied by a major readjustment and financial effort to the extent that, in addition to the expenses related to the course and the travel costs, the mother had to attend two English intensive courses. The couple, despite the increase in costs and consequent commitment of the family budget, resulting from this joint participation in the course, realizes that the intervention with the child should be a family project, in which both should have the same opportunities, knowledge and responsibilities.

At the end of the course, the identification with the philosophy, principles and strategies advocated by the SRP was further reinforced, starting the family to define their home program and to make the decisions that, in the perception of this couple, would be essential for the success of the same.

Believing that the child's challenges are a social, relational, and interactional disorder, without cognitive deficits, they gave more importance to social skills rather than the academic ones, removing their child from the day care center, supported by the belief that academic learning is irrelevant as long as the child does not develop skills to connect with people and the world in general [3].

The conviction of the development based on acceptance, on the child's motivations and respect for his individuality, looking at stereotypies as privileged moments to join and create affective connections and bonds and not as behaviors to be discouraged, culminated in the decision to abandon most therapies, except for physiotherapy, with the therapist's compromise to work on motor issues using the Son-Rise methodology and music therapy, since music presents itself as one of the child’s motivations. The remaining therapies were considered counterproductive, since presenting incompatible intervention strategies with the work to be done with the child and giving relevance to the academic skill rather than the social one.

Being the SRP in sync with the biomedical approach of autism, it defends that many children with ASD face immunological and digestive challenges that influence their social, relational and sensory development, promoting behavioral deviations and difficulty in acquiring skills [3,22,23]. Thus, it considers that
biological obstacles should be removed by proposing a diet without gluten, casein and sugar.

Given the history of intolerance and high sensitivity to some nutrients and the attempt to meet great conditions for the development of the child, G is being evaluated by a nutritionist through various laboratory tests, being, in an initial phase, gluten and casein removed and sugars reduced.

Scientific evidence shows a positive and significant correlation between the weekly duration of the intervention and its success [23]. As such, the family chose the Full Time - Level II program. There was a need to co-opt, select and train volunteers. This was a judicious process in which parents always had in mind that this team would be the showcase of the world for their child. So they tried to choose very different, creative, energetic, empathic people who loved and admired G and his autism and identified themselves with the SRP. The recruitment and initial training of the volunteers took place in 3 sessions of 120 minutes each. In the first session, G’s narrative of the development was made, explaining his problems, his impairments and motivations. After, the fundamentals and principles of the SRP, as well as its intervention strategy, were presented. In the second session, the SRP development model was presented and the techniques to be used within the playroom analyzed in detail, complementing with videos as examples. In the third session, pair and group work were done to stimulate creativity, unlock some attitudinal constraints and promote team bonding, nicknamed the Son-Rise Family.

The Son-Rise Family is composed by the parents and 12 volunteers aged between 10 and 41. All adults are employed, none holds an academic qualification lower than the 12th grade, with 6 members having a higher education. Ten of the volunteers belong to the extended family, the remaining ones are the child’s former educator and a friend of the couple with training in the area. Given the insistence and interest of the two children belonging to the family, their involvement in G’s problem and their commitment to help him overcome his difficulties, the parents chose to integrate them in the volunteer team, as the relationship with these children will be, in the perception of these parents, the beginning of the child’s familiarization with his peers.

With the exception of the children, who have 30-minute playroom sessions, the remaining participants have 120-minute sessions twice a week. These sessions are observed through a mirror glass, and, at the end, the feedback of the follow-up is presented, referring to the techniques used, as well as some suggestions for acting and overcoming.

The team meets monthly for training, with the purpose of sharing ideas and experiences, analyzing the set objectives and their level of development and redefining objectives, strategies and activities.

After interviewing all the participants, it was possible to verify that acceptance and unconditional love are the dominant tone of the speech. The common goal is to see G get as far as he can get and to see him independent is a dream come true. All have revealed that, if G’s development does not keep up with their high expectations, it will not be understood as a discouraging factor, since any gain is a victory and changes are always possible as long as one continues to believe them. According to reports, the common motivation in this project is love, belief in G’s potential, the will to make a difference in the life of this family, as well as the possibility of being part of a miracle. All reported that their strength rests on G’s small achievements, increased intentional eye contact and interactive attention during the first month of the SRP application, and deep commitment to the program.

The extended family that is not part of the volunteer team was also trained in order to understand the changes in the couple's life and to learn to relate to G without compromising the intervention made in the playroom.

A more detailed description of the SRP and its intervention techniques will be addressed in the second article of this trilogy.

7. Conclusion

This article narrates the preparatory phase of the intervention traced by the parents, presenting the context of the child’s problem, the intervention model outlined, the characterization of the participants, as well as their perceptions and motivations.

Being a work in progress, it is intended to complement it at the end of the first phase of the intervention (six months), analyzing the objectives defined in the social curriculum of this child and the provisional results already achieved, trying to contribute to the understanding of how the love for a different child and the change of perceptions and attitudes derived therefrom may allow a family to believe that healing is possible, that it is in their hand, and how this belief may influence the development of that child.

8. References


Abstract

In response to the Truth and Reconciliation Committee (TRC), Prime Minister (PM) Trudeau [1] vowed to enact all 94 calls to action [2]. The #10 call to action piques my interest, specifically, principle three, where we ask support to develop culturally appropriate curricula. After reviewing the research, our next step for Indigenous education requires the implementation of knowledge systems deriving from Indigenous ontologies. The following questions derived from reviewing the research and experience: 1.) How can Indigenous peoples of Canada develop a curriculum framework, curriculum expectations, and a pedagogical approach unique to the land and the ways of ancestral living within the community and how do you implement it into a twenty-first century classroom? 2.) Should the pedagogical approaches be created first to shape the curriculum expectations and educational framework for Turtle Island, or should the educational framework and expectations be created to shape the pedagogies? The goal is to attain sovereignty through self-determining our own educational framework and Indigenous pedagogies that will derive from canoe and snowshoe making processes. In doing so, the Indigenous of Turtle Island become sovereign, self-determined peoples aligning to the 1613 Wampum Belt, the first treaty, between the Haudenosaunee and the Dutch [3].

2. Literature Review

What does educational sovereignty mean and how can the Indigenous of Canada attain it through partnership? Last fall, I struggled to understand why I could not articulate or find the “how” for Indigenous teaching. Instead, the literature reviewed directed readers to Western pedagogies that worked best for First Nation, Metis, and Inuit (FNMI) students such as Castagno & BrayBoy [5]. Battiste [6] suggested the best Western pedagogies for Indigenous students as her work provided the foundation for other educators to build on. Sinclair [7] suggested an original Indigenous pedagogy based on relationships opposed to authority paralleling Indigenous community approaches with children. Some teachers’ pedagogy included the Medicine Wheel (Sinclair) [7] and while the medicine wheel is an intricate process, some Indigenous communities do not practice the medicine wheel. Rice built on the Medicine Wheel concept as a pedagogy by incorporating a cultural lens and developed an elaborate pedagogical process that was used to instruct English Academic Purposes for International students. (Mr. Rice 2017, per.comm) Elder Gordon Williams as cited in Toulouse [8] proposed land-based experiences and character education that aligns with Elder Albert Marshall’s [9] Etuaptmumk the Mi'kmaw word for two eyed seeing where one eye sees with Western knowledge and the other eye sees with Indigenous knowledge; a concept that I am building on. Toulouse [8] suggests researching Maori and Aboriginal community driven work and after reading Yunkaporta’s dissertation, Aboriginal Pedagogies at the Cultural Interface that inspired me to think beyond my ideas in 2011, I agree with Toulouse. Yunkaporta’s dissertation, Aboriginal Pedagogies at the Cultural Interface that inspired me to think beyond my ideas in 2011, I agree with Toulouse. Yunkaporta [10] carved boomerangs with Elders where he created 8 pedagogies at the cultural interface and guided teachers toward the implementation of those pedagogies. This led me to the question, how can the Indigenous peoples of Turtle Island develop a curriculum framework and curriculum expectations with a pedagogical approach.
unique to the land and ways of ancestral living and what will this look like in the twenty-first century classroom? In 2011, I proposed that the FNMI required a national educational framework to strive toward sovereignty and self-determination. In receiving reprimands for using the word national, I now refer to the proposed national educational framework as the Educational Framework for Turtle Island, and this leads me to my second question: should the pedagogical approaches be created and implemented first to shape the educational framework and curriculum expectations for Turtle Island (grassroots approach) or should the educational framework and expectations be created to shape the pedagogies (top to bottom approach)?

3. Research Methods and Methodologies

According to Smith [4], research begins with the academics and is only accepted by the elite in the political and social contexts, as such, research that benefits the FNMI often benefits the governing structures rather than the actual people living in the impoverished communities. To further develop the elitist’s idea, there are those Indigenous elitists that believe you do not need to research Indigenous pedagogy because such knowledge is innate and/or learned through teachings during youth, and the Indigenous elitists, like the Priests, covet the knowledge to construct reality according to an agenda. Fortunately, our current government accepted and vowed to implement all 94 calls-to-action from the Truth and Reconciliation Commission [2] providing FNMI peoples with an opportunity to attain sovereignty through a self-determining process to create an Indigenous curriculum framework, expectations deriving from community knowledge, and pedagogical approaches to deliver that knowledge.

The research methods, based on Smith’s [4] 25 Research Projects include: envisioning, intervening, testimony, storytelling, connecting, reframing, revitalization, and sharing. Envisioning begins the journey where we can hope and dream of a better future. This method underpins the dream of the Two Row Wampum adapted to the needs of the twenty-first century. Intervening is an invite from the community to develop change. By restructuring an organization to fit the Indigenous peoples, (Smith) [4] we intervene the colonialist agenda. Testimony are people’s painful life stories and provides the person with a safe space to share. Storytelling has various approaches, and the one specific to this research is a story interlacing among the existing and upcoming stories into a collection. Communities can revitalize art, cultural practices, cultural traditions, and/or language. Revitalization of the language is paramount for the Indigenous peoples. Connecting is a favourite research method, for personal reasons; the idea is whole, the Indigenous relational idea permeates the worldview. Reframing is the Indigenous peoples’ approach to reshape writings and theories to meet the current needs of our Indigenous peoples. Lastly, sharing, is sharing among a network to enlighten those with open minds and warm hearts.

While most Westerners might see the number of methods as daunting and unrealistic, I am providing the whole picture of an extended abstract – this is a work in progress. The methods intricately interlace among the various situations as the sinew of the snowshoes interlace differently for various snow paths.

Envisioning the hope and dream of a community grounded in culture is the first step. Intervening began the journey last fall when I was asked to become a curriculum developer. I declined feeling that I did not have the experience or expertise needed. By mid-October, I was ushered out of my classroom at lunch and asked again to be the curriculum developer; I acquiesced. In this process, the organization’s willingness to change policy and programs is fundamental if the goal is to change the structure of the organization to fit the Indigenous peoples.

By interlacing testimony and storytelling together to record history, non-Indigenous teachers and future generations learn and identify with the culture. Connecting, reframing, revitalizing, and testimony are relevant for the foundation of Indigenous pedagogy. Connecting is relational and inclusive. Reframing pedagogy to reflect the community is a priority. Revitalizing language through language awareness shapes the process too. My testimony from 2003 to the present shaped my ontology that has yet to be fully developed into an epistemology. To articulate my ontology is an ongoing struggle that I have only just begun to articulate what I see. This ontology learned from the Dene, the Cree, the Ojibway, the Algonquin peoples, my blood memory, family interactions, and other experiences will also shape the process.

Sharing interlaces through the various methods for knowledge sharing, knowledge seeking, and knowledge guidance. Networking provides support to continue when you want to give up.

The methods of knowledge collection follow some Indigenous and Western protocols making this a mixed-method approach.

4. Building on the Research

FNMI students learn frustration when we implement Western pedagogies or learn less than other students when we shape the Western pedagogy to meet the needs of the FNMI student. In the #10 call to action, the TRC’s [2] principle i) the idea to close the identified achievement gaps within one
generation is likely to happen because by then our Indigenous youth will be fully assimilated. It is up to us to prevent the assimilation process by encouraging our leaders and educators to strengthen the Indigenous eye of Marshall’s [10] two-eyed seeing.

I built on Marshall’s two-eyed seeing because the concept is logical. For our students to be successful without assimilating to the mainstream, we need to encourage our youth to think and see with the Indigenous eye. To me, epistemology is the ways of seeing (vision/concepts), the ways of doing (practice/traditions), and the ways of knowing (observing, reflecting, articulating). To me, natural land laws or human land laws shape these ways; the ontology. The difference between natural land laws and human land laws is simple. Humans observed the natural land laws and either worked in harmony with those natural land laws or manipulated those laws for economic gain. When thinking about Marshall’s two-eyed seeing, I think about the story of the two wolves (evil and good) and the question posed at the end of the story, which wolf will win? The answer is whichever wolf you feed. The strength of the eye depends on the knowledge fed to the eye.

Let me explain further. The natural land laws and the human land laws shape the heart wishes (the unspoken desires of the heart that often pixelate into concrete realities) that develop into thoughts and expressed through prayer/song, word, and action. This is a four step, internal process. The four step external process has two paths and is as follows: 1) the human land laws shape the governments/corporations that develop into the knowledge economy and expressed through the idea of freedom, written language, and choice, or 2) the natural land laws shape the family/community that develop into ancestral knowledge expressed through spirituality, storytelling, and harmony. This idea underpins Indigenous pedagogy for me and the extent to what and how teachers implement Indigenous pedagogy depends on what eye is fed the most.

The closer the teacher aligns to the natural land laws in life, the more Indigenous the pedagogy.

5. Conclusion

Our Indigenous pedagogical leader, Marie Battiste, [6] articulated the problems, proposed solutions, and provided future educators with questions to answer. From her work and the work of others, we arrive at a time where Indigenous and non-Indigenous strive to work together for the sake of reconciliation, but more importantly, for Indigenous communities to strive toward sovereignty and self-determination. I propose that the snowshoe and canoe making process shape the individual communities’ pedagogies, expectations, and curriculum frameworks to unite our peoples across this part of Turtle Island through the TRC’s call to action #10, principle 3 where we create culturally appropriate curricula to enhance our youths’ success rates through a balance between seeing with Indigenous and Western ways of knowing. The spirit of the times aligns with our ancestors wishes of the first treaty, the Two Row Wampum.

6. References


Questioning the Identification Process of Young Gifted English Language Learners

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Abstract

The identification process of gifted English language learners, ELLs, will succeed using diverse identification tools. By relying on one or two tests, school systems are adding to the barriers that impede gifted ELLs’ identification. Preliminary findings highlighted the need to provide educators with comprehensive professional development programs on assessing ELLs. These findings also accentuated the work in progress nature of the identification process and the obligation to offer young ELLs enriched environments to promote development of their gifts. The significance of this article is in its threefold push to end the predominance of standardized tests. The first push is for policy makers to recognize that school systems are failing to identify gifted ELLs and they need to propose change. The second is for researchers to study the success rate of available identification tools. The last push is for school psychologists and educators to collaborate to find functional in-class identification methods.
Session 22: Ubiquitous Learning

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(Authors: Juan Zheng, Shan Li, Yunfeng Zheng)

Title: How Companies Manage External Information Sources: Lessons for Educators of Businesses
Information
(Author: Abdus Sattar Chaudhry)

Title: Using Digital Storytelling in Teaching English as a Foreign Language with Secondary School
Children
(Authors: Betül Aktas, Enes Chig)
The Influence of Academic Performance on Students’ Perceptions of the e-Schoolbag

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Abstract

The last decade has witnessed the increasing development of the e-Schoolbag in China’s primary and secondary schools. However, how to promote effective implementation of the e-Schoolbag in the classroom is still unclear. This study examines the influence of students’ academic performance on their perceptions of the e-Schoolbag. Especially, students’ technology acceptance, learning motivation and self-efficacy were examined. A total of 299 participants were involved in the study, and were divided into three groups based on their annual academic performance using K-means clustering algorithm. The research found that there was no statistically significant difference among these three groups in terms of technology acceptance. However, the advanced group was statistically significantly higher than those of intermediate performance on measures of learning motivation and self-efficacy. The findings could inform the successful classroom practices of e-Schoolbag-based projects.

1. Introduction

The integration of tablet computers (TC) into education has gained popularity all over the world [1]. Numerous educational applications exist that promote instructional purposes and they are easily installed on the TC, which makes mobile learning promising. For example, e-Textbooks provide students with abundant learning resources on one tablet, reducing the need to carry heavy book bags.

However, most of the educational apps on TC support students’ self-directed learning [2], making the teaching and learning process separated from each other to some extent [1]. Therefore, an integrated solution known as the e-Schoolbag came to researchers’ sights.

The e-Schoolbag (electronic schoolbag) is not only a technology-rich teaching platform for teachers, but also an intelligent learning environment for students [3]. In classroom context, every student holds a e-Schoolbag device which allows them to participate in various activities. Teachers are using the e-Schoolbag with administrative functions, so they are able to control students’ learning processes by monitoring students’ screens, allocating learning resources, organizing group discussions and assigning tasks. Numerous studies have revealed the fact that students’ learning performance could be improved by using the e-Schoolbag [4][5]. However, there is insufficient research on how students’ learning performance affects their perceptions of the e-Schoolbag. As such, this study aims to contribute to the body of e-Schoolbag research. Specifically, how students’ academic performance affects their technology acceptance of the e-Schoolbag, learning motivation and self-efficacy.

2. Theoretical Background

Findings from technology acceptance model, learning motivation and self-efficacy had lay the foundation for this research.

2.1. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is a famous model proposed by Davis [6]. TAM provides a theoretical foundation to explain participants’ technology adoption behaviors, and how users come to accept and use a technology or system. In TAM, perceived ease of use (PEOU) and perceived usefulness (PU) are two perceptions that reflect users’ attitude towards technology. PEOU refers to what extend users believe that using a specific tool or system would be free from effort, while PU refers to the degree to which users believe that using a specific tool or system would improve their performance [6]. TAM offers researchers and practitioners a method to study the process of applying new technologies in the classroom or workplace.

2.2. Learning motivation

Considering the different theoretical positions, learning motivation can be classified as the type of
extrinsic, intrinsic, and engaged participation [7]. In a technology-rich environment, students’ extrinsic learning motivation can be improved by fostering generative processing, such as adding appealing graphics or challenging scenarios [8]. Ciampa [9] pointed out that students’ intrinsic motivation can be enhanced in the mobile learning through curiosity, control, challenge, recognition, competition and cooperation [9]. And based on the perspective of situated learning, engaged participation that refers to individual’s social relationships with others could also play a role in students’ learning [10]. All of these forms of motivation are important for effective learning. In this study, there was no need to differentiate learning motivation into categories, since we just focus on the influence of students’ academic performance on their integral motivation.

2.3. Self-efficacy

Bandura [11] proposed the concept of self-efficacy as one’s belief in his or her ability to complete tasks or reach goals [11]. Self-efficacy beliefs control how people think, feel, motivate themselves and behave [12]. In general, people with high self-efficacy are more likely to make efforts to complete tasks, and to persist longer in those efforts, than those with low self-efficacy [13]. For example, students with high self-efficacy take difficult tasks as chances to be mastered rather than threats to be avoided. In order to succeed, students should have a robust sense of self-efficacy [12]. However, some research suggested that the ideal self-efficacy should be slightly above a person’s ability, since people with high self-efficacy tend to set goals that are too high to complete [14].

3. Methods

In order to examine the influences of students’ academic performance on their technology acceptance of the e-Schoolbag, learning motivation and self-efficacy, an experiment was conducted.

3.1. Participants

A total of 299 participants from one middle school located in Shenzhen, China were involved in this study. In detail, all students were from the same grade (176 boys and 123 girls).

3.2. Procedures

The study aims to reveal the effect of students’ academic performance on e-Schoolbag based learning. In order to conduct the research, the participants were divided into three groups according to their annual academic performance. Concretely, the three groups were created by using the K-means clustering algorithm, and named as the advanced, intermediate, and low group respectively. In detail, the centroid was 516.4 for the advanced group, 419.7 for the intermediate group and 297.2 for the low group while the full score was 630. They were relatively optimum cluster centroids in this study. Furthermore, there were 145 students in the advanced group, 112 in the intermediate group, and 42 students in the low group (See Table 1).

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Number</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Advanced</td>
<td>145</td>
</tr>
<tr>
<td>Group 2</td>
<td>Intermediate</td>
<td>112</td>
</tr>
<tr>
<td>Group 3</td>
<td>Low</td>
<td>42</td>
</tr>
</tbody>
</table>

It’s important to mention that students were unaware of the grouping, for the sake of minimizing exterior influences on students. Participants were given two-days of training which confirmed that all students had certain knowledge of the e-Schoolbag. The same teacher conducted the training in the classroom environment. At the end of the training, all students were asked to finish a questionnaire.

3.3. Materials

The questionnaire used in the study consists of five parts: demographic, learning motivation, self-efficacy, perceived ease-of-use, and perceived usefulness of the e-Schoolbag. Students’ learning motivation was assessed by a questionnaire adapted from Pintrich and Groot [15]. In terms of self-efficacy, perceived ease-of-use, and perceived usefulness of the e-Schoolbag, the questionnaires were derived from Hwang inTaiwan [16]. All items of the questionnaire were presented using a 5-point Likert scale with 1 stands for ‘strongly disagree’ and 5 as ‘strongly agree’. To test the effect of the internal consistency of the questionnaire, reliability of the scale was analyzed. Specifically, the Cronbach’s coefficient of the whole scale was 0.92. The Cronbach’s coefficient of learning emotion, self-efficacy, perceived ease-of-use, and perceived usefulness were 0.92, 0.84, 0.87 and 0.90 respectively.

Figure 1 provides an overview of the features of the e-Schoolbag software. The e-Schoolbag provides students technology-rich learning environment with kinds of learning resources, scaffoldings, cognitive and metacognitive tools. By using the e-Schoolbag, students can learn and practice both in and out classrooms, without the limitation of time and place.
When teachers release learning resource on the server side, students can have a view of the resource in *My Textbook* and *Class Resource*. Before the class, they can orientate and plan their learning by using the *Previewing* function on the e-Schoolbag. In the *Learn and Help* part, the software provides students a cognitive-apprenticeship like environment to get immediate help from teachers. There is also an online *Group Discussion* where students can communicate with each other or work collaboratively to solve complex subject topics. In order to control their paces of learning, and adjust their learning based on their performance, students are provided with *Practice* and *Quiz* to monitor and assess their learning at the time they want. They can collect the mistakes or unfamiliar knowledge into *Flaw Sweeper*, thus they can have a review now and then. The e-Schoolbag also includes several cognitive tools that promote cognitive monitoring and control strategies critical to classroom learning, such as mind map, vote, clock, calendar and camera.

4. Results

Analyses were performed with SPSS 21. A one-way ANOVA was performed with academic performance of student as the independent variable and students’ perceived ease-of-use of the e-Schoolbag as dependent variable. The results showed that there were no statistically significant differences among the three groups (F (2,296) = 2.275, p = .105).

Likewise, a one-way ANOVA was performed with academic performance of student as the independent variable and students’ perceived usefulness of the e-Schoolbag as dependent variable. The one-way ANOVA also showed that there were no statistically significant differences on students’ perceived usefulness of the e-Schoolbag (F (2,296) = 1.416, p = .244). However, in terms of motivation, there was a statistically significant difference between groups as determined by one-way ANOVA (F (2,296) = 3.239, p = .041, See Table 2).

A Tukey post hoc test revealed that the motivation of advanced group (M = 4.28) was statistically significantly higher than those of intermediate performance (M = 3.98). However, there was no statistically significant difference between the low and advanced groups (p = 0.903). There was also no statistically significant difference between the low and intermediate groups (p = 0.378).

### Table 2. Group difference on learning motivation

<table>
<thead>
<tr>
<th>Groups</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>5.853</td>
<td>2</td>
<td>2.927</td>
<td>3.239</td>
<td>.041</td>
</tr>
<tr>
<td>Within</td>
<td>267.473</td>
<td>296</td>
<td>.904</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>273.326</td>
<td>298</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As for students’ self-efficacy, one-way ANOVA showed that there was a statistically significant difference between groups too (F (2,296) = 3.269, p = .039, See Table 3). Similar to the results of motivation, the Tukey post hoc test revealed that the self-efficacy of advanced groups (M = 4.58) was statistically significantly higher than those of intermediate performance (M = 4.37). There was no statistically significant difference between the low and each of the other two groups.

### Table 3. Group difference on self-efficacy

<table>
<thead>
<tr>
<th>Groups</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2.727</td>
<td>2</td>
<td>1.363</td>
<td>3.269</td>
<td>.039</td>
</tr>
<tr>
<td>Within</td>
<td>123.456</td>
<td>296</td>
<td>.417</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>126.183</td>
<td>298</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Discussion

In terms of technology acceptance of the e-Schoolbag, there were no statistically significant
differences among the three groups. The results of students’ perceived ease-of-use and perceived usefulness revealed that all groups accepted the new learning system. This is in accordance with the viewpoint that the ‘digital natives’ who are surrounded with technologies both in classroom and daily life have a tendency to accept new technologies easily [17]. However, this study found that the advanced group was statistically significantly higher than those of intermediate performance in terms of learning motivation and self-efficacy. From the perspective of students’ academic performance, the practical experience told us that the intermediate group always bears the greatest academic pressure among all these three groups. Thus, it makes sense to assume that students in intermediate group have low motivation and self-efficacy to make a change, since they are catching up with those of the higher performance, especially the e-Schoolbag cannot promise anything. While game theory teaches us making changes may be an effective strategy for the low performance to overturn their situations. This explains why the low performance have a relatively high motivation and self-efficacy to use the e-Schoolbag.

6. Conclusion

The research found that students’ academic performance made no difference on their technology acceptance of the e-Schoolbag. However, the advanced group was statistically significantly higher than those of intermediate performance on measures of learning motivation and self-efficacy. The findings in this paper will help decrease the mismatch between the implementation of e-Schoolbag and students’ realities, and further facilitate the successful adoption of the e-Schoolbag in primary and middle schools.

7. References


How Companies Manage External Information Sources: Lessons for Educators of Businesses Information

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Abstract

This paper surveys the information management practices of Kuwaiti businesses focusing on access to external information sources. Preferences for information sources are described and approaches used to arrange access to external information are discussed. Perceptions of companies about the functions and services desired to be provided by information support services are also discussed. The paper concludes that further investigation is desired to probe participant responses for better understanding and insights about use and exploitation of external information for organizational effectiveness.

1. Introduction

Information is of tremendous value to business organizations in problem solving, planning, evaluating the marketplace, developing new products and improving operational performance. Employees in businesses use information from inside as well as from outside their own organizations. A variety of external information sources may be helpful. These include abstracts and indexes, bibliographies, biographical sources, databases, directories, encyclopedias and dictionaries and more. Businesses attempts to make these sources available through information services with appropriate arrangements to ensure access. These arrangements may include establishing in-house libraries and information centers, initiating collaborative arrangements with information services outside companies, outsourcing information support functions to providers and acquiring/accessing specific sources through vendors and aggregators.

King [1] highlights that it is important that the information service is offering what the business needs and should respond to the constantly changing demands of businesses. These services should focus on delivering value-added relevant support direct to staff who are undertaking work for clients. Jurick [2] suggests that information sources must be critically analyzed and their attributes reviewed for reliability of content and coverage. Sullivan and Porter [3] suggest that business information professionals should be proactive to find collaborators who are interested in exploring ways to evaluate information and focus their attention on cultivating partnerships. Information professionals can benefit from outsourcing if the right tasks are outsourced. Clegg [4] outlined key challenges in the implementation of information services and systems and provided an overview why businesses looked to outsource and what they expected from their outsourcing.

This paper investigates approaches adopted by top Kuwaiti businesses to facilitate access to external information to take advantage of its potential for operational performance and organizational effectiveness.

2. Literature Review

Duncan [5] highlights the value and need of effective information infrastructure in companies and asserts that information managers and information should employ appropriate strategies to provide satisfactory information services. The role of the information specialist is more than a custodian, one in which strategic planning is required for the effective control of corporate knowledge, assessing the impact of the high cost of information access, and management of expectations of users. There is a need to provide a wider range of services and develop a particular range of information skills. Smith [6] argues about the importance of considering the unique information requirements of different business niches within the small business sector. Smith explained how an information management platform overcame the challenge of providing information services to small businesses with a highly-tailored, yet cost-effective information service.

It is imperative that information service units in companies have a good view of the needs of managers and professionals and monitor the patterns and trends prevalent in the working of those organizations. Foster [7] surveyed business information services in corporate information services, based on in-depth interviews with leading business information managers. This study reported that business information budgets have been stable, business conditions have been turbulent but has had no real impact on the services. More information was rolled out to the clients’ desktops and the services
were working to add value through a variety of approaches, including evaluation and analysis, business development, and recruiting suitable information professionals. Techno-centric 'knowledge management remains important in some companies, particularly law firms. There is great interest and envisaged potential in social technology and tools and techniques Marketing business information services is still seen as crucial by 90 per cent of respondents. Fifty-five percent of the services provide some kind of competitor information functions services support compliance functions such as 'know your client'. LexisNexis takes over at the top of the expenditure league; the demand for information on Asian business markets is growing; almost all services are committed to training users in the discovery and use of digital business information sources.

Trimble [8] provides an overview about the extent and scope of information services in a copy. This company relies on knowledge sharing and collaboration to maximize its value to its government customers. The company created research clusters whose objective is shaping a purpose they can own. The research clusters, developed by Mitre's Information Services Department as part of a new operational model of collaboration and sharing knowledge across the organization. This article explains the creation of cross-center teams to support the needs of specific customers, resulting in improved service and allowing information analysts to acquire more technical knowledge about projects.

Weddell [9] noted a major shift in the provision of information services and shared practical experience and learning gained from the planning and implementation of a new information service model in an agricultural research library. The author provides evidence that, in developing a new model for information services that could be embraced by clients and staff, the company has to create a successful strategy for improving information services to support company goals. It is highlighted that the transition from traditional reference professional to the proactive role of a knowledge advisor requires adjustment to changes in information delivery. He maintained that that a number of major shifts are seen in information and records management. Now records managers are being asked to host information systems, manage digital information, preserve paper records and make sure appropriate security standards are in place.

Dickinson [10] refers to Dun and Bradstreet regarding the challenges facing information professionals as they attempt to provide quality services for their users and to reduce their spending on information in response to the toughening of the business climate. Budget holders are still not convinced that spending money on quality information management is a sound investment, capable of yielding increased revenues and reduced costs. Information services are faced with the twin challenges of demonstrating the value of the company information service, and securing high quality information services with very limited resources. Providing high quality and reliable data through user friendly interfaces and delivering new value added services in a cost effective manner remains an issue. It is vital that in order to address these challenges, information centers in companies are innovative and creative in their conduct of business. Zeeman, Jones & Dysart [11] identified innovative service trends in library and information services in the corporate arenas. Based on detailed literature review, myriad service delivery models were reported in private sectors. The findings matched the “building blocks” for service models defined as E-Library, E-Services, Digitization, Physical Space, Technology, and Procurement.

Business finance their information services generously when they are making profits. But with financial constraints, information centers are always an early victim. Germano [12] stated that effects of national budget contraction and austerity are having a highly negative impact on information support services. While the cause of reduced funding seems rooted in budgetary pressures, the reality is that financial support is traditionally premised upon an assumption of goodwill and the benefit they provide to their clientele.

Review of literature helped develop a framework about access to external information. This framework is given in Figure 1.

![Figure 1. External Information Framework](image)

**3. Methodology**

The main focus of the study external information focusing on the following questions:
1. What are the preferences of employees for different types of information sources?
2. What strategies are employed by businesses to arrange access to external information?
3. What functions are considered important for information support services in business organizations?
One hundred top businesses were selected as a sample for this study. The sample was drawn from the listings of companies in Kuwait Stock Exchange where their ranking is based on the total revenue. They were invited to participate in the study by filling up an online questionnaire.

In the first data collection attempt, 30 companies provided information about their information support services. This paper is based on this initial data. Data collection exercise is continuing and 28 more companies have provided data which is being analyzed. It is expected that the remaining companies will also supply data by the end of the research project (December 2017). Data collected cover external and internal information. This paper covers only external information. Findings about internal information are reported in a separate paper.

Data analysis has been done using basic statistical methods. In this paper, ranking has been done using the mean scores. Detailed analysis will be provided in follow up reports based on the full study.

4. Analysis of Findings

Companies were requested to list their names and also indicate the nature of business they are currently involved. Only 18 provided this information. Majority of these (6) are in the petrochemical sector followed by 5 from the general trading and investment sector. One company each participated from education, food, real estate, architecture, construction, and consulting.

4.1. Information Sources

The first part of the questionnaire was about preference for information sources needed and used. Their preferences are listed by rank based on the mean scores.

Table 1. Preferred Information Sources N=30

<table>
<thead>
<tr>
<th>Rank</th>
<th>Information Sources</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Company &amp; industry reports</td>
<td>4.45</td>
</tr>
<tr>
<td>2</td>
<td>Investment information</td>
<td>3.87</td>
</tr>
<tr>
<td>3</td>
<td>Government sources</td>
<td>3.76</td>
</tr>
<tr>
<td>4</td>
<td>Reference sources</td>
<td>3.69</td>
</tr>
<tr>
<td>5</td>
<td>Books, journals, newspapers</td>
<td>3.53</td>
</tr>
<tr>
<td>6</td>
<td>Consumer information</td>
<td>3.43</td>
</tr>
<tr>
<td>7</td>
<td>Business sources</td>
<td>3.10</td>
</tr>
<tr>
<td>8</td>
<td>Bibliographic databases</td>
<td>3.06</td>
</tr>
</tbody>
</table>

As expected, the most preferred source of information is company and industry reports. The other information sources preferred by the businesses are government reports and reference sources. Bibliographic databases and business information sources were reported to be the least preferred.

4.2. Strategies for Access

Companies were asked about their approach for arranging access to external information. Their responses are shown in Table 2. These are ranked by percentage of their responses. They indicated multiple choices. Therefore, the total percentage is greater than 100.

Table 2. Arrangement for Access to Information N=30

<table>
<thead>
<tr>
<th>Rank</th>
<th>Arrangement</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Links provided through website</td>
<td>46.67</td>
</tr>
<tr>
<td>2</td>
<td>In-house library/information center</td>
<td>40.00</td>
</tr>
<tr>
<td>3</td>
<td>Outsource to information providers</td>
<td>36.67</td>
</tr>
<tr>
<td>4</td>
<td>Subscriptions through agents</td>
<td>30.00</td>
</tr>
<tr>
<td>5</td>
<td>Partnership with other companies</td>
<td>23.33</td>
</tr>
<tr>
<td>6</td>
<td>Membership in outside libraries</td>
<td>20.00</td>
</tr>
<tr>
<td>7</td>
<td>Access through aggregators</td>
<td>03.33</td>
</tr>
</tbody>
</table>

As shown in Table 2, the three main approaches used to arrange access to external information include links through websites, information centers, and outsourcing to information providers.

4.3. Information Support Services Functions

Companies were asked to choose functions and services that they expect from their information support services. A ranked list of their choices in provided in Table 3.

Table 3. Information Support Services N=30

<table>
<thead>
<tr>
<th>Rank</th>
<th>Function/Service</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Compiling information on competitors</td>
<td>3.24</td>
</tr>
<tr>
<td>2</td>
<td>Alerting service and briefs as timely documents &amp; dashboards</td>
<td>3.14</td>
</tr>
<tr>
<td>3</td>
<td>Interpreting and adding value to social media content</td>
<td>3.11</td>
</tr>
<tr>
<td>4</td>
<td>Procuring or arranging access to information materials</td>
<td>3.03</td>
</tr>
<tr>
<td>5</td>
<td>Delivering information access on mobile devices</td>
<td>3.03</td>
</tr>
<tr>
<td>6</td>
<td>Using cloud computing to store information sources</td>
<td>2.97</td>
</tr>
<tr>
<td>7</td>
<td>Streaming media to facilitate current awareness resources</td>
<td>2.93</td>
</tr>
<tr>
<td>8</td>
<td>Implementing search tools beyond Boolean operators</td>
<td>2.93</td>
</tr>
<tr>
<td>9</td>
<td>Build systems to navigate information outside the company</td>
<td>2.80</td>
</tr>
</tbody>
</table>

As shown in Table 3, most businesses prefer their information support services focus more on
compiling information on competitors, preparing alerting briefs and adding value to social media content. Procuring information sources, delivering information on mobile devices, and using cloud computing to store information were not the preferred services in Kuwaiti businesses.

5. Discussion

Responses of companies on all three aspects covered in this paper are somewhat surprising. For example, in case of preference for information sources, one would expect that businesses would like to use bibliographic databases, make consumer information to relevant departments in the company, and also make sure that their employees have access to business information sources. This might indicate that there is not much appreciation about the role of information sources in these businesses.

For arrangements to make external information to business employees on timely basis, some viable options could have included partnerships, memberships, and use of aggregators but surprisingly these appeared on the bottom of the list of strategies used by business organizations in Kuwait. This might be linked to the understanding of the role and potential of these strategies. It is interesting to note that most companies chose the strategy of providing access to external information by linking their websites. This may have serious implications for accessing information sources important for competitive intelligence.

In the digital environment, facilitating access to information using mobile devices and using cloud computing for storage of information could have been the top services expected from the business information support services. Similarly, smart search tools and user-friendly navigation systems for quick discovery of information are considered important in modern information systems and services. These also appear on the bottom of the list of desired functions expected to be performed by business information support services.

There is a possibility that most of the questions are properly understood by staff responding to the questionnaire on behalf of the company. It is advisable that follow up study is done using interviews and focus group discussions to gain more insights and understanding of perceptions of businesses about the role of information support services.

6. Lessons Learnt

No study about information support services in Kuwaiti companies could be located from relevant professional literature. This study will help gather best practices for arranging access to external information sources by leading companies. The compilation of best practices will be a useful source for decision makers for formulating guidelines for information support in local and regional companies. In addition, the project report will be very good source for teaching courses related to business information.

The questionnaire survey has provided very useful information with regard to the preferences for information sources, strategies for arranging information access, and introducing useful functions and services in information support services in companies. Further investigations are desirable to probe the answers of the company preferably using qualitative methods such as interviews and focus group discussions. This will help gain better understanding about information access and management practices in business sector organizations.

7. Acknowledgements

Research for this project was funded by Kuwait University project number OH01/16.

8. References


Using Digital Storytelling in Teaching English as a Foreign Language with Secondary School Children

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Abstract

The impact of new technologies in educational contexts has been mostly positive as new technologies have given educators the opportunity to enhance their knowledge, skills, and therefore improve the standard of education. Researchers have found that student engagement, achievement, and motivation are advanced through the integration of such technologies. However, education systems still face many challenges: one of these challenges is how to promote student engagement in order to provide better educational outcomes. It has become increasingly important to use innovative pedagogical models to engage learners. Digital storytelling is one of the innovative pedagogical approaches that can engage students in deep and meaningful learning.

1. Introduction

It has become a great concern about how children may be affected and how teachers should use computers in their classroom activities effectively with the increased role of technological devices in learning. It is important to consider how it can be used more effectively integrated into student curriculum since technological devices are widely used to maximize learning activity. Digital storytelling refers to a short form of digital media production that allows everyday people to share aspects of their life story. "Media" may include the digital equivalent of film techniques (full-motion video with sound), animation, stills, audio only, or any of the other forms of non-physical media (material that exists only as electronic files as opposed to actual paintings or photographs on paper, sounds stored on tape or disc, movies stored on film) which individuals can use to tell a story or present an idea.

2. Methodology

Subject of the research: is authentic digital storytelling, the phenomenon digital storytelling as a motivating factor of ELT an effective lesson in ELT.

Galaxy International School participant is 68 students (37 girls and 31 boys) and EFL college students (Suleyman Demirel High School). First of all, The placement exam (Department of Two Foreign Language, Philology Faculty, Suleyman...
Demirel University) was applied and started our student study from an appropriate level. Meanwhile, AMTB Questionnaire was performed. Using of Technology was also measured. As already mentioned in methodology, the participants in this study were first-year college students of Suleyman Demirel High School enrolled in the course “English as a Foreign Language”. And Galaxy International School. These students need to take this course which is in the list of compulsory disciplines and subjects while studying at the college in order to get their college diplomas. Digital Storytelling was watched three times a week throughout a month because they might understand what it is. After a month, writing a short dialogue for two different situations was asked to students to do in order to assess their ability to use the target language in context. Two situations are A: “You are having a coffee with your sister in Coffee time coffee bar and then you see a friend. You introduce your sister to your friend.” B: “You are at home and your mobile phone rings. It’s your friend. He or she wants to ask you for another friend’s mobile phone number.” With these dialogue, writing skills of students assessed and than aims of their project was told to students, (i.e. the final task they would have to carry out in groups at the end of the sequence). They had to create and display a digital story consisting of an introduction, a conflict and a resolution, and containing both a narrative and a dialogue in which they used daily linguistic routines. The explanation of this objective gave a purpose to the whole set of workshops planned. They prepared digital storytelling for two weeks whatever they want. In the end of the project, The digital storytelling was watched in the classroom with the students. Each member of the group commented other group member’s projects. And then AMTB performed again and all data statistically evaluated.

3. Results

During the classes with the group we defined and discussed what digital storytelling is and conducted various workshops with activities on digital story reading and creation. While 70% had a solid intermediate level as far as reading and understanding written English are concerned, their writing, listening and speaking abilities in this language corresponded to elementary level. The students’ age was in between 13-16. In the case of the older students, although they had not taken English lessons for many years, it was remarkable that their motivation was higher, and so they put more effort and dedication than the younger lot. Consequently, their work was among the best.

The findings that were analyzed through 68 will be indicated in terms of the hypotheses that were constructed for the purpose of the study. Besides, the descriptive analysis of the semi-structured interview questions will also be revealed that were formed based on the hypotheses of the study.

Analyses and participants’ demographic features. Our survey gave us kind of result Students learnt to use the main features of Microsoft Office, Word, Power Point and Excel.

The use of detailed descriptive analysis for the participants of the study is regarded to be an important factor that increases the reliability of the study. Within this regard, detailed descriptive analyses of the participants of both groups were conducted in order to make a comparison between the experimental and control groups in terms of an indicator of the normal distribution of them as well.

Figure 1. Result of questionnaire of students before and after teaching

Figure 2. Digital Storytelling can be used as stimulus to practice listening, speaking and writing skills

Figure 3. English lesson with digital storytelling are motivated and entertaining
Digital storytelling provides a variety of ways to learn new things, practice old ones and develop all language skills. In my thesis, I concentrated on the creation and using digital storytelling in the classrooms of the English language.

Any story-making process and using digital storytelling needs certain knowledge on both sides of participants and preparation and effort which, in the end, can lead to conclusions which we did not anticipate before. Storytelling brings people together and it gives them the opportunity to actively participate in the process of story-making as well as during presentations of the projects.

This study consists in an attempt to find out the current situation in English teaching of Galaxy International Secondary school as well as in defining the advantage of using Digital Storytelling to teach grammar, vocabulary and writing.

The main purpose of this research was to increase motivation to learn the English language through using Digital Storytelling in one class, whereas in a 2nd one those materials were not used at all. According to results obtained every week, it can be concluded that Digital storytelling increased the motivation and interest of students in learning the English language. As it stated in many sources, digital storytelling materials are created for native speakers of the language and used in a class in its original form and design. With help of digital storytelling, students can develop their worldview, learn how to use some words or expressions in everyday life speech, develop listening and speaking skills and even learn communication competence and if they prepared digital storytelling, they can develop writing skills and learn how to use technology.

In the theoretical part of my thesis, I focused on characteristics of storytelling, digital storytelling and the description of ways to create a story and a digital story. I also focused on how to integrate a story into the digital story. Another important part of the theoretical part of my thesis was the description of skills that can be practiced and developed through digital storytelling which is incorporated in the English language classrooms. But digital storytelling as I pointed out before does not practice and develop only language skills but other useful skills as well, and can contribute to the overall development of any participant and his or her relationship with the teachers or other members of the group.

In the practical part of my thesis, I described a particular example of the process of making a digital story from my own experience and I documented all the tasks and activities which we had to complete. Moreover, that particular example should show two points of view on the digital storytelling because we created that story as the students at the school but we also had to consider the aspects of the digital story which would be useful for the usage in classrooms of English language with young learners of English.

4. Discussion

Before we start we have to take into account for whom we want to create a story. Not all stories can be used. There is a difference between young learners of English and teenagers as well as teaching at school and at a language school. Due to these aspects, we have to consider the audience to which we will present the story, the age of the participants, the goals which we want to achieve and the language skills that we want to practice and improve.

Useful means in the initial phase of the story-making process are a pre-script and a storyboard which helps to realize which ways we will choose when we start working on the story. Anybody, both a teacher and a student can get a feedback from somebody else if he or she is not sure about the use of right elements of the story.

Storytelling offers more advantages rather than disadvantages. It can be a new and helpful method developing skills of English language. Digital storytelling also develops other skills than language skills only. It helps students and teachers to orientate themselves in using multimedia technology and it can become a part or interconnection of other subjects. It improves students’ and children’s communicative skills and it encourages their collaboration, motivation, and imagination.

If we are strong enough to pass over the initial failures which accompany each new method then we will find digital storytelling fun, playful and interesting regeneration of the teaching of English language.

5. Conclusion

We are living in the age of technology so we have to get used to using digital technology in our everyday lives.

Figure 4. Questionnaires of computer use to learn English
I used a questionnaire and observation method to obtain a sufficient collection of reliable and valid data. Each group prepared digital storytelling. Ultimately, digital storytelling gives students the chance to learn group work study and have better pronunciation and speaking abilities. Most students reported positive effect in terms of listening skills and greater motivation.

In the final part of my thesis, I tried to connect both parts of my thesis and point out positive aspects of digital storytelling in the classes of English language.

6. References


Session 23: Math and Science Education

Title: Academic Adjustment of Grade VIII Students in Solving Mathematical Word Problems Using K to 12 Curriculum
(Authors: Mary Ann R. Agdan, Jomalyn F. Dalumpines, Lady Jane B. Calderon, Jealyn C. Flores, Amiel Joseph P. Gabuyo, Rosvelinda L. Dequiros)

Title: Science Technology Engineering and Mathematics (STEM) in Zimbabwe
(Author: Sithobile Priscilla Dube)

Title: Elementary Teachers’ Views of and Experiences with Reform-Based Mathematics Curricula
(Author: Jennifer Hall)
Academic Adjustment of Grade VIII Students in Solving Mathematical Word Problems Using K to 12 Curriculum

Mary Ann R. Agdan, Jomalyn F. Dalumpines, Lady Jane B. Calderon, Jealyn C. Flores, Amiel Joseph P. Gabuyo, Rosvelinda L. Dequiros
Student, Divine Word College of Calapan, Philippines

Abstract

Academic adjustment is adapting to every change in curriculum. Some of the factors that affect the academics are attitudes, motivation, and study habits. Mathematical word problems is one of the main components to this research which will also be a way on how to find out the ability of the students in terms of solving more problems in mathematics using k-12 curriculum.

We conducted this research in order to find out the relationship between academic adjustment and solving mathematical word problems. We used descriptive -correlational method of research to seek and investigate whether a relationship exists between two or more variables. It enables you to make more intelligent predictions [1]. Our main respondents were Grade VIII students at Oriental Mindoro National High School (OMNHS, Philippines). This research is supported by different theories (B.F Skinners, Thorndike, and McClelland)

Result revealed that there is significant relationship between the academic adjustment and solving mathematical word problem using K to 12 curriculum. [2]This particular research endeavor will be significant to the target respondents, the school administrators, curriculum planners and implementers, and most especially as a guide for future researchers to investigate fully on related researches about academic adjustment. Moreover, it may also be a reference in the global setting on how Grade VIII students in an ASEAN country like the Philippines adjust to curriculum changes.

1. Introduction

Education is nothing without curriculum. Academic adjustments occur when new curriculum is being integrated. Since Philippines is the only country in Asia having 10 years of basic education, academic adjustment and alignment is necessary.

The enhanced K to 12 Basic Education Program seeks to provide for a quality 12 - year basic education program that each Filipino is entitled to. This is consistent with Article XIV, Section 2(1) of the 1987 Philippine Constitution which states that “The State shall establish, maintain, and support a complete, adequate, and integrated system of education relevant to the needs of the people and society.”

Meanwhile, the implementation of K to 12 is new to the students and adjustment to improve their academic performance was very challenging. Students may not be ready to a kind of changes Curriculum is dynamic so that changes, specifically the content covered by these subjects are being adjusted. Mathematics is one of the subjects that require further attention in relation to this situation and one of the topics under this discipline is solving mathematical problems which is the main focus of this study. Solving problems is at the heart of mathematics.

It is for these reasons that the researchers would like to determine the Academic Adjustment of Grade VIII Students in Solving Mathematical Word Problems using K to 12 Curriculum.

2. Literature Review

Preiss and Franova [3] analyzed the relationship between depressive symptoms, academic achievement and intelligence. The data were collected from the sample of 635 school children consisting 304 boys and 331 girls by using Wechsler's intelligence scale for children and grade point average. The findings indicated that there was no gender difference in academic achievement of boys and girls. Navarrete et al. [4] carried out a study on culture and achievement motivation in Latino and Anglo American high school students of USA on a sample of 149 students from the high school districts in California. Data were collected by administering
culture value orientation and attribution-emotion scale to the sample and grade point average was taken as academic achievement measures of the students. Tella [5] investigated the impact of motivation on academic achievement in mathematics. The participants of the study were 450 secondary schools students of both sexes drawn from ten schools of Ibadan.

Data were collected by employing achievement test in mathematics as a measure of academic achievement of male and female students in mathematics. Male students were found to have better achievement in mathematics. Ilogu [6] investigated the effect of achievement motivation on students’ cognitive performance behavior. A sample 200 students was selected by stratified random sampling from Lagos.

Achievement motivation scale and senior secondary school certificate were used to collect data from the students. Results of the study indicated significant positive relationship between achievement motivation and students’ academic achievement.

3. Methodology

The researcher used descriptive-correlational method in this study. The respondents were 90 grade VIII students enrolled during school year 2015-2016 at Oriental Mindoro National High School. In order to determine the academic adjustment of grade VIII students in solving mathematical word problem using k to 12 curriculum, the researchers used a 20-item questionnaire. It is composed of four parts with five questions each part.

All responses to be provided by the respondents were tabulated and scored based on the five point numerical scale. Each point obtained corresponding verbal description having the scale of 1.00-1.79 interpreted as low, 1.80-2.59, interpreted as moderately low, 2.60-3.39, interpreted as neutral, 3.40-4.19, interpreted as moderately high and 4.20-5.00, interpreted as high. The level of academic performance of the respondents in problem solving was interpreted using the following scales and descriptions: 75 and below interpreted as very low performance; 76-81, interpreted as low performance; 82-87, interpreted as average performance; 88-93, interpreted as superior performance; and 94-100, interpreted as excellent performance.

4. Analysis of Findings

Table 1. Mean status of the respondents on status of academic adjustment of grade VIII students in terms of attitudes

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Mean</th>
<th>Rank</th>
<th>Description</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I do not panic when I am required to solve some problems on the board</td>
<td>3.73</td>
<td>1</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td>2</td>
<td>I feel relaxed in solving complicated problems</td>
<td>3.12</td>
<td>5</td>
<td>Some times</td>
<td>Fair</td>
</tr>
<tr>
<td>3</td>
<td>I enjoy solving word problems</td>
<td>3.48</td>
<td>4</td>
<td>Some times</td>
<td>Fair</td>
</tr>
<tr>
<td>4</td>
<td>I can show the pertinent solutions of the problem</td>
<td>3.49</td>
<td>3</td>
<td>Some times</td>
<td>Fair</td>
</tr>
<tr>
<td>5</td>
<td>I can finish solving the problem within time allotted</td>
<td>3.58</td>
<td>2</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>3.48</td>
<td></td>
<td></td>
<td></td>
<td>Fair</td>
</tr>
</tbody>
</table>

Table 2. Mean Status of the respondents on the status of academic adjustment of grade VIII students in terms of motivation

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Mean</th>
<th>Rank</th>
<th>Description</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I listen attentively during class discussion</td>
<td>3.81</td>
<td>2.5</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td>2</td>
<td>I raise questions during class discussion</td>
<td>3.11</td>
<td>4</td>
<td>Some times</td>
<td>Fair</td>
</tr>
<tr>
<td>3</td>
<td>I prefer to study with my peers</td>
<td>3.81</td>
<td>2.5</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td>4</td>
<td>I prefer to study alone</td>
<td>2.99</td>
<td>5</td>
<td>Some times</td>
<td>Fair</td>
</tr>
<tr>
<td>5</td>
<td>I prefer to solve simple problems</td>
<td>4.19</td>
<td>1</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>3.58</td>
<td></td>
<td></td>
<td></td>
<td>Good</td>
</tr>
</tbody>
</table>
Table 3. Mean status of the respondents on the status of academic adjustment of grade VIII students in terms of study habits

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Mean</th>
<th>Rank</th>
<th>Description</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I review my past lessons in order to inform future progress</td>
<td>3.47</td>
<td>1</td>
<td>Sometimes</td>
<td>Fair</td>
</tr>
<tr>
<td>2</td>
<td>I study my lessons in advance</td>
<td>3.28</td>
<td>4</td>
<td>Sometimes</td>
<td>Fair</td>
</tr>
<tr>
<td>3</td>
<td>I participate actively in the class discussion</td>
<td>3.6</td>
<td>2</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td>4</td>
<td>I spend my vacant time to study my lessons</td>
<td>2.99</td>
<td>5</td>
<td>Sometimes</td>
<td>Fair</td>
</tr>
<tr>
<td>5</td>
<td>I do my home works to submit it on time</td>
<td>3.79</td>
<td>1</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Overall Mean</td>
<td>3.42</td>
<td></td>
<td>Some times</td>
<td>Fair</td>
</tr>
</tbody>
</table>

Table 4. Summary of the mean status of academic adjustment

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Rank</th>
<th>Description</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>3.48</td>
<td>3</td>
<td>Sometimes</td>
<td>Fair</td>
</tr>
<tr>
<td>Motivation</td>
<td>3.58</td>
<td>1</td>
<td>Often</td>
<td>Good</td>
</tr>
<tr>
<td>Study Habits</td>
<td>3.42</td>
<td>2</td>
<td>Sometimes</td>
<td>Fair</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>3.50</td>
<td></td>
<td>Often</td>
<td>Good</td>
</tr>
</tbody>
</table>

Table 5. Frequency and percentage distribution in solving mathematical word problem using K to 12 curriculum

<table>
<thead>
<tr>
<th>Academic performance</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>94-100</td>
<td>12</td>
<td>13.33%</td>
<td>Excellent performance</td>
</tr>
<tr>
<td>88-93</td>
<td>28</td>
<td>31.11%</td>
<td>Superior performance</td>
</tr>
<tr>
<td>82-87</td>
<td>36</td>
<td>40.00%</td>
<td>Average performance</td>
</tr>
<tr>
<td>75-81</td>
<td>14</td>
<td>15.56%</td>
<td>Low performance</td>
</tr>
<tr>
<td>Below-75</td>
<td>0</td>
<td>0.00%</td>
<td>Very low performance</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>100.00%</td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Correlation Table between the mean status of academic adjustment and performance in solving mathematical word problems using K-12 curriculum

<table>
<thead>
<tr>
<th>Variables</th>
<th>R</th>
<th>r²</th>
<th>p-value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>0.269283</td>
<td>0.07</td>
<td>0.010272</td>
<td>Significant</td>
</tr>
<tr>
<td>Motivation</td>
<td>0.222639</td>
<td>0.05</td>
<td>0.034931</td>
<td>Significant</td>
</tr>
<tr>
<td>Study Habits</td>
<td>0.371746</td>
<td>0.13</td>
<td>0.000309</td>
<td>Significant</td>
</tr>
</tbody>
</table>

5. Discussion

Table 1 shows academic adjustment of grade VIII students in terms of attitudes, it was found out that item number 1 obtained the highest overall mean rating of 3.73 described as often. It was followed by item number 5 with overall mean of 3.58 described as often. On the other hand, item 4 got 3.49 as its overall mean described as sometimes. Item 3 has an overall mean of 3.48. It shows that item 2 got the lowest overall mean of 3.12. The academic adjustment of grade VIII students in terms of attitudes was perceived as sometimes as indicted by the overall weighted mean score of 3.48.

Table 2 shows the academic adjustment of grade VIII students in terms of motivation, it was found out that item number 5 obtained the highest overall mean rating of 4.19 described as often. Item 1, has an overall mean of 3.81 interpreted as often. Item 3 has an overall mean 3.81 described as often. With an overall mean of 3.11, item 2 shows student as sometimes. Item 4, obtained an overall mean of 2.99 which has the lowest mean. The academic adjustment of grade VIII students in terms of motivation was perceived as often as indicted by the overall weighted mean score of 3.58.

Table 3 shows academic adjustment of grade VIII students in terms of study habits, it was found out that item number 5 obtained the highest overall mean rating of 3.79 described as often. Item 3 has an overall mean of 3.47 described as sometimes. With an overall mean of 3.28 item 2 shows student as sometimes. Item 4, obtained an overall mean of 2.99 which has the lowest mean interpreted as fair. The academic adjustment of grade VIII students in terms of study habits was perceived as sometimes as indicted by the overall weighted mean score of 3.42.

Table 4 shows the summary of the mean status of academic adjustment of grade VIII students, it was found out that item number 5 obtained the highest overall mean rating of 3.73 described as often. It was followed by item number 5 with overall mean of 3.58 described as often. On the other hand, item 4 got 3.49 as its overall mean described as sometimes. Item 3 has an overall mean of 3.48. It shows that item 2 got the lowest overall mean of 3.12. The academic adjustment of grade VIII students in terms of attitudes was perceived as sometimes as indicted by the overall weighted mean score of 3.48.

Table 5 shows academic adjustment of grade VIII students in terms of study habits, it was found out that item number 5 obtained the highest overall mean rating of 3.79 described as often. Item 3 has an overall mean of 3.47 described as sometimes. With an overall mean of 3.28 item 2 shows student as sometimes. Item 4, obtained an overall mean of 2.99 which has the lowest mean interpreted as fair. The academic adjustment of grade VIII students in terms of study habits was perceived as sometimes as indicted by the overall weighted mean score of 3.42.

Table 6 shows the summary of the mean status of academic adjustment and performance in solving mathematical word problems using K-12 curriculum.
sometimes and interpreted as fair. The academic adjustment of grade VIII students was perceived as often as indicted by the overall weighted mean score of 3.50.

Table 5 shows the frequency and percentage distribution in solving mathematical word problem using K to 12 Curriculum. The data reveal that most of Grade VIII students at Oriental Mindoro National High School have an average performance in solving mathematical word problem having a 40.00%. The excellent and superior performance of the students could be attributed to their positive attitudes towards school or classroom activities.

Table 6 shows the correlation between the mean status of Academic Adjustment and Performance in Solving Mathematical Word Problems using K to 12 Curriculum. The coefficient of determination or r2 for attitudes, motivation, and study habits is 0.07, 0.05, and 0.13 respectively. Means that seven percent (7%), five percent (5%), and thirteen percent (13%) of the variation in performance in solving mathematical word problem is due to or can be attributed to the variation in the academic adjustment and the remaining percent’s is due to other factors, such as IQ, teacher etc. The computed p-value are 0.010272, 0.034931, and 0.000309 for attitudes, motivation and study habits respectively. In all variables, the computed p-value is less than the alpha α (0.05). It appears that there is a correlation between the said variables to the academic performance in solving mathematical word problems using K to 12 curriculum. Hence, the null hypothesis that there is no significant relationship between mean status of Grade VIII students on academic adjustment and performance in solving mathematical word problems of Grade VIII using K to 12 Curriculum in Oriental Mindoro National High School was rejected.

6. Conclusion

Based on the data gathered, the overall mean of attitude was 3.48 and interpreted as “fair.”

Motivation had an average weighted mean of 3.58 and interpreted as “good.” The interpretation of the study habits had an average weighted mean of 3.42 was “fair.” And for the overall mean of the academic adjustment was 3.50 and interpreted as “good.”

In terms of the performance in solving mathematical word problems of the grade VIII students results obtained 82 -87 having forty percent (40%) of the learners with verbal interpretation of “average performance.”

Through the test of significance, the researcher came up with the following conclusions; the computed p-value are 0.010272, 0.034931, and 0.000309 for attitudes, motivation and study habits respectively. In all variables, the computed p-value is less than the level of significance at α (0.05). It appears that there is a correlation between the said variables to the academic performance in solving mathematical word problems using K to 12 curriculum. This means that the performance in solving mathematical word problems using K to 12 curriculum does affected by the academic adjustment in terms of attitude, motivation and study habits.

7. Reference

Science Technology Engineering and Mathematics (STEM) in Zimbabwe

Sithobile Priscilla Dube

National University of Science and Technology, Zimbabwe

Abstract

Since 2015, the Zimbabwean media both electronic and print is awash with the government’s reform in its education system that is inclined on Science Technology Engineering and Mathematics (STEM). This is an educational reform process that will be reviewed in 2026. This paper explores the government’s approach in implementing STEM through curriculum reform in ensuring that graduates are entrepreneurs and not job seekers. The study focused on the identification of the essence of human experiences about STEM in the participants’ responses during the interviews, focus group discussions and the questionnaires. Twenty senior policy makers in the two education ministries of government and fifty STEM beneficiaries who were post-industrial university students were selected as participants. Subsequent policy statements from the two education ministries have refined the direction of reform towards STEM. The preliminary results from this study show that the industrialization of the economy and creation of employment is possible.

1. Introduction

The Research Paper is extracted from the researcher’s studenship research (work in progress of a PhD in Education Policy Studies – Reports or Proposals for Future Research) on the title ‘Examining Relations Between Educational Policy and Higher Education Students’ Access into Industry in Zimbabwe’ in the Faculty of Education at Stellenbosch University, South Africa, Third Year 2017. The paper will be presented at the Canada International Conference of Education (CICE) which will be held from 26 to 29 of June 2017.

During the past 27 years of teaching and administration, the researcher has been involved with issues of curriculum policy at both the implementation and the decision-making levels. The researcher’s involvement in the development of strategic plans for the United College of Education (UCE) for 2000-2005 and the review of the National University of Science and Technology (NUST)’s strategic plan for the years running 2010-2015 and 2016-2020 in Bulawayo, Zimbabwe influenced this paper. The researcher observed with interest how departments at both institutions broke down education policies for teaching and learning but the products do not reflect the efforts. The majority of the graduates produced each year remain unemployed. The results of interviews to a number of graduates indicate a high rate of unemployment for highly trained graduates [8].

Since 1980, the highest unemployment rate was recorded in 2014 and many workers have been retrenched up to today. The government seems to have bitten more than it could chew by nursing very high unemployment, the paper claims [6] [4]. One of the causes of high unemployment could be the disparity between education policy innovations and graduates’ accessing of the work market. The Atlas of Global Development (2009) and the evaluation of The Industrial Development Policy (2012-2016) compiled by the Ministry of Industry and Commerce in Zimbabwe, discovered the mismatch between education policy and employment opportunities. The launch of this policy was intended to curb the problem of unemployment and strategic plans were formulated to create employment conditions [7], [1] and [4].

There is need to find out how far the plans have been implemented and also find out what can be added to come up with more helpful interventions to curb the unemployment. Stemitzing became one of the initiatives. The foundation of this initiative in the educational reform is anchored on the Nziramasanga Commission, [9] and the economic blueprint: the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) which triggered the current drive to reform and rationalize the education system. The government of Zimbabwe’s thrust through STEM subjects is to industrialize the economy and create the much needed employment in line with ZIMASSET. STEM skills are envisaged to empower the young graduates through the promotion of science and innovation.

2. Materials and Methods

The paradigm chosen for this study is a philosophical qualitative interpretive approach of the discussion on the STEM initiative whose results are anticipated in the industrialization of the economy and creation of employment. The interpretive qualitative approach involves analysing and
understanding and “view(s) human beings as a subject of knowledge principally capable of reflection, (potential) rationality, discursive communication, and social interaction” [3]. The approach can be meaningful as it is determined by the researcher’s interpretations, respect and loyalty in relation to the life world. It will have a phenomenological focus on describing how life is experienced firsthand by twenty senior education policy makers in the two education ministries of government and fifty STEM beneficiaries mainly post-industrial university students. Policy makers targeted will include Education Officers for Sciences, heads and/or senior staff of universities.

Data will be generated using semi-structured individual interviews. The targeted participants will be sampled through a purposive sampling procedure. They will be selected from three major universities: NUST in Bulawayo, Midlands State University (MSU) in Gweru and University of Zimbabwe (UZ) in Harare and industries in those three cities. The three cities are the most productive and have more industries. The major universities were the first to be established in these cities in Zimbabwe. The participants will sign consent forms to show that they agree to participate on the basis of confidentiality and anonymity. Interviews will be transcribed and data analysed with comparisons and rigorous discussions. The key issues in the responses will be based on the voicing of opinions and participants to provide feedback concerning STEM as an initiative of the government to curb unemployment and for industrialisation. The media also has helped revolutionized the promotion of STEM careers in response to ZIMASSET’s human capital objectives.

3. Discussion

The discussion mainly focused on issues surrounding STEM and the departure from the Arts and Humanities which have traditionally played a role in training of the mind. The discussions on STEM subjects which have strategic economic importance and are a key result area of the Ministry of Higher and Tertiary Education, Science and Technology Development (MHTTESTD). The discussions emphasized priority areas where students taking up STEM subjects at Advanced Level and STEM courses at university level should be afforded free education by the government. However, the Zimbabwe Manpower Development Fund (ZIMDEF) is financing the STEM initiative. The programme is hoped to address the issues of unemployment and will also empower young people through the promotion of science and innovation. STEM is an education grouping used throughout the world. It benefitted the students in the United States and Australia where young adults are equipped with the necessary skills for the economy of the future.

In as much as the STEM programme is a good initiative some stakeholders in the education sector have expressed mixed feelings over the programme. Education experts say that the programme is very noble and is a step in the right direction but emphasize that the programme must contribute meaningfully to the current situation, be relevant to current circumstances and be an initiative that seeks to emphasize the importance of practical subjects.

The programme came at a time when the nation was on a mission to achieve economic recovery. The researcher feels privileged to be researching on a similar topic in order to make contributions to the development of the country. The idea in theory is very good but falls short when it comes to practice. The argument is that the responsible authorities did not make enough consultations. There was not much that the responsible authorities did to consult the stakeholders, for example, students, parents and teachers. The stakeholders just heard of the announcement and were instructed to oblige [2]. This gap between the researcher, stakeholders and the government needs to be dealt with and in this research, the researcher intends to make an effort to close it by consulting and involving as much stakeholders as possible.

The move by the government is expected to embark on the program to enhance the quality and number of skilled personnel in STEM. Mawere, [5] also had recommended the reducing or elimination of the incidence of Mathematics and Science education dropouts. If the policy makers should place value in the employability skills it could help the industry as the skills are important for the modern economy. Some graduates and their employers say more could be done to develop the students’ wider skills and attributes, including team-working, communication, leadership, critical thinking and problem solving. These are known collectively as employability skills.

4. Results

The move for STEM as an initiative was a result of following the recorded data collected: Mathematics has one of the lowest pass rates in the country with only 29,891 passing it of the total 114,236 that sat for the exam; A few students took up some key STEM subjects such as Physics and Chemistry. The same trend is noticeable in general for all STEM subjects (except Mathematics and Geography); In general, more students sit for art and commercial subjects like History, Religious Studies, Literature, Accounts and Commerce than do STEM subjects; These huge disparities mean that even though the Physics and Chemistry pass rates seem higher – 86% and 58% respectively – than the English Language pass rate of just 27%, the comparison does not tell the full story.
Very few students take up Physics and Chemistry, and are star students who are generally expected to pass the subjects. On the other hand, every student, whether they are good at it or not, are required to sit for the English exam. The STEM subject that has the most students sitting is Geography [10]. Preliminary results from this study show that the industrialization of the economy and creation of employment is possible in a stemitized education system.

The objective of the multimedia outreach programme was hoped to increase the number of STEM students who will enrol in STEM degree programmes at the country’s universities in 2018. There is an increased uptake by students for STEM degree programmes at the country’s universities. The media has revolutionized the promotion of STEM careers in response to ZIMASSET’s human capital objectives. There is great potential in government to continue creating STEM skills that are critically needed for the country’s new industrialization thrust and the focus of the MHTESTD to becoming the anchor in addressing issues of unemployment in the country, through empowerment of young people in the promotion of science and innovation. These results provide some information that helps us see where more effort is needed in ensuring that Zimbabwe produces more STEM graduates at college and university level. The aim is to inculcate the interest or just the number of people that take up STEM careers.

5. Recommendations

The study recommends STEM subjects that have strategic economic importance and should be a priority based on needs assessed by MHTESTD. For impact to be felt, Zimbabwe should aim at producing more STEM graduates at college and university level. It is so much a priority that students taking up STEM subjects at A Level receive free education from the government. While the ministry may justify the entry point of student into STEM, the study identified the gap where the introduction of STEM Education should start at early child development level through the portals of primary and high school to prepare students’ informed choices of careers for entry into tertiary level. The MHTESTD should create a Monitoring and Evaluation unit for periodic and systematic review of STEM initiatives to determine needs of students and employers. The study recommends tertiary institutions to keep track of trends in the local and global industries. New knowledge will be generated and the recommendations will be used to bring transformation in the higher education institutions, industry, individual prospective students and policy makers.

The study seeks to create a synergy where industry could be re-engaged in the re-designing of the curricula in order to solve problems and bring a lasting change. [7]. The experts maintain that the fastest growing and highest earning careers in the future will be in STEM fields, hence, the need to encourage school, colleges and universities to stemitise. Amongst a number of recommendations for action: placing employability at the centre of the organizations’ strategic planning; widening access to work placements; and promoting real and equal partnerships between employers and higher education institutions will be highly recommended.

6. Conclusion

The call to stemitise clearly is a key development in government policy to encourage educational institutions and employers to work together to develop approaches that contribute to graduate employability. The process should start earlier by inviting students to enrol in STEM subjects, courses and programmes. In order for the system to become more efficient and responding to market needs, the government, employers and individuals must all engage more in skills development. The study concludes that in order for the system to become more efficient and responding to market needs, the government, employers and individuals must all engage more in skills development.

7. References


Abstract

As part of a large-scale study about elementary students’ views of and experiences with mathematics and mathematicians, Grade 4 and 8 teachers in the Canadian province of Ontario were interviewed about their experiences learning and teaching mathematics. In this paper, I discuss challenges faced by teachers in implementing the current, reform-based Ontario Mathematics Curriculum, which differs substantially from the traditionalist manner in which they learned mathematics. The results of this study suggest that implementation of this curriculum involved substantial shifts in the participants’ teaching practice and created challenges interacting with parents. The findings highlight challenges and delays that occur between curriculum reform and implementation of these reforms as intended.

1. Introduction

Curricular reforms are often plagued with challenges associated with conflicting stakeholders’ views [1]. Years after “new” mathematics curricula are implemented, teachers struggle to implement them as intended. This has been particularly the case regarding reform-oriented mathematics curricula, such as the most recent version (2005) of the Ontario Mathematics Curriculum [2]. Broadly, the term “reform-oriented mathematics curriculum” refers to a curriculum that guides students to learn mathematics through an active process involving multiple tools, where students solve “challenging problems that entail open-ended answers or involve the use of different strategies... [and must] explain their mathematical reasoning” [3] (p. 1). In contrast to traditional mathematics teaching and learning, where students complete mathematics work (which often involves memorization and repetition of “math facts” and algorithms) individually and silently, reform-oriented mathematics teaching and learning involve students working together (i.e., co-constructing knowledge) and discussing their thinking about meaningful mathematics problems.

In alignment with current research about reform-oriented mathematics teaching and learning, the Ontario Mathematics Curriculum places importance on making connections — among mathematical topics, with other subject areas, and with students’ everyday lives — through rich, meaningful mathematical investigations [2]. The use of various mathematical tools is encouraged, as is the use of varied means of instruction and assessment. By following such a curriculum, the goal is for students to not only gain a firm understanding of mathematics, but also to develop an appreciation for the subject area and confidence in themselves as learners of mathematics. Fundamentally, the Ontario Mathematics Curriculum is based on the belief that “all students can learn mathematics and deserve the opportunity to do so” [2] (p. 3).

In this paper, I discuss elementary teachers’ views of and experiences with the implementation of this curriculum. This research was conducted in the Canadian province of Ontario as part of a large-scale study that investigated elementary students’ views of and experiences with mathematics and mathematicians, and the ways in which students’ views and experiences can be influenced by teachers, parents, and popular media. Specifically, I draw on interviews conducted with Grade 4 and Grade 8 teachers who teach in Ontario elementary schools to address the following question: What are Ontario elementary teachers’ experiences with and views of reform-oriented mathematics curricula?

2. Theoretical perspective

Broadly, I assume a social constructivist stance; thus, I conceive of the discipline of mathematics and conceptions about mathematics and mathematicians as both socially constructed and historically and culturally situated. Specifically, I draw on Cobb’s complementalist social constructivist stance, in which learning is seen as “both a process of active individual construction and a process of enculturation into the mathematical practices of the wider society” [4] (p. 13). While Cobb’s stance was originally posited with regard to mathematics learning, I have applied it to learning in a broader sense, including learning about mathematics and related topics, such as mathematicians and mathematics education. Through learning, we gain understandings of societal values and beliefs about mathematics, mathematicians, and mathematics education. This perspective provides a basis for understanding how teachers form views of mathematics and mathematics education, and how
those views relate to societal values, beliefs, and stereotypes.

3. Review of literature

As noted, curricular reform is rife with challenges in implementation, due to competing demands and interests of key individuals, such as teachers, administrators, and parents, as well as logistical issues. Here, I discuss literature that is focused on teachers’ experiences with and views of reform-oriented mathematics curriculum implementation.

Teaching mathematics in a reform-oriented manner has a wealth of evidence regarding increased student understanding and enjoyment of mathematics, decreases in inequities between student groups (e.g., gender, SES), and improved performance on classroom and large-scale assessments, among other benefits [3], [5], [6], [7]. However, even when teachers are in favour of implementing reform-oriented curricula, there are various impediments to curricular reform, which can lead to chasms between the intended curriculum and the enacted curriculum.

One common concern focuses on the preparation of teachers to change their teaching methods to match the focus and design of reform-oriented mathematics curricula. For instance, in Bulut’s research with Turkish teachers, he found that, despite 14 days of training about the new curriculum, the teachers did not feel that they were sufficiently prepared to implement it [5]. Furthermore, teachers may lack enthusiasm for professional development programs associated with curriculum reform due to “reform fatigue” [8]. That is, after repeated curricular reforms, particularly in rapid succession (e.g., every few years), teachers may feel a sense of fatigue in having to learn about and implement yet another curriculum.

Regardless of the professional development provided, curricular changes necessitate additional time for planning and teaching preparation, and this is often not provided to teachers during such times of transition [9].

Another common concern is more pragmatic: a lack of infrastructure to support the implementation of the curriculum as intended. Schools may lack the physical space and furniture set-up to allow for interactive group work, as required by reform-oriented curricula [5]. Furthermore, the provided/required textbooks and other materials for students may still be aligned with a more traditionalist manner of teaching and learning and/or may not be fully supportive of the reform-oriented curriculum [5], [10]. However, even if textbooks and other materials provided are not sufficiently aligned with the goals of reform-oriented mathematics curricula, teachers who are knowledgeable about and committed to teaching in a manner aligned with such curricula can use these materials “selectively to implement the ideals of reform” (p. 356), making alterations where they see fit [10].

Another key factor in teachers’ implementation of reform-oriented mathematics curricula is parental support. When students receive consistent messaging about the mathematics curriculum from parents and teachers, it is much easier for teachers to implement changes. Conversely, a lack of parental support can make it very difficult for teachers to implement changes associated with reform-oriented curricula, as students face conflicting pedagogical agendas from parents and teachers [9], [11]. Parents typically have little involvement with or input concerning curricular changes [12] and are not sufficiently well-informed about the changes or their underlying justification [13], [14]. When parents lack understanding of new curricula and/or disagree with the changes, they may feel disempowered and may disengage from participating in their children’s mathematics education (e.g., not helping with homework) [11], [13]. Consequently, as argued by Remillard and Jackson, “excluding parents from the discourse of educational reforms will likely lead to the failure of those reforms” [13] (p. 256).

Beyond addressing such concerns regarding parental involvement in curriculum reform, in order for reform-oriented mathematics curricula to have a chance to be implemented as intended, several supports for teachers must be in place in their school environments. Since teachers’ views of reform are linked to their prior experiences [15], it is crucial to give teachers the space and time to discuss their beliefs and understandings about teaching and learning mathematics. As argued by several scholars, the degree to which teachers implement reform-oriented curricula as intended is strongly tied to their pedagogical beliefs [9], [16], [17]. Professional learning communities within schools can also help teachers to work together to “unpack”, and thus more successfully implement, new curricula [9], [10], [18]. Through meetings and discussions, teachers can co-construct understandings about new curricula, share resources, and work to alter their teaching practices.

4. Research design

The research reported in this paper is part of a large-scale, multifaceted project in which I investigated elementary students’ views of and experiences with mathematics and mathematicians, and the ways that students’ views may be influenced by parents’ views, teachers’ views, and popular media. As part of this project, Grade 4 and Grade 8 teachers participated in individual interviews about their experiences with mathematics and mathematicians, both as children and as adults, including discussions of their teaching philosophies and experiences teaching mathematics.
Here, I focus on the aspects of the interviews related to the teacher participants’ experiences with the current, reform-oriented mathematics curriculum in Ontario, as well as their views regarding this curriculum specifically and reform-oriented mathematics teaching more generally.

4.1. Participants

Ten Ontario teachers (five Grade 4 teachers and five Grade 8 teachers) participated in semi-structured interviews (mean duration of 1:39:51) about their views of and experiences with mathematics and mathematicians, both as students and as adults. Many of the Grade 8 teachers had a bachelor’s degree in a field related to mathematics (e.g., science, business), whereas most of the Grade 4 teachers’ bachelor’s degrees were in social science and humanities fields. Two men and eight women participated in the interviews; this gender ratio (1:4) is generally representative of the gendered composition of elementary teachers as a group. The participants had a wide range of teaching experience, from one year to more than 20 years of experience. The participants ranged in age from late twenties to late forties.

4.2. Interview protocol

The teacher interview protocol contained four sections: (1) Experiences with mathematics as a student; (2) Experiences with mathematics as an adult; (3) Views of and experiences with mathematics, mathematicians, and the media; and (4) Current views of mathematics. In Section 2, the participants were asked questions specific to their teaching philosophies and practices in mathematics.

The participants’ responses to the questions in Section 1 and Section 2 will be the focus of this paper, as the former provides information about the participants’ experiences with mathematics as students and the latter provides information about the participants’ experiences with mathematics as teachers.

4.3. Data analysis

The teacher interviews were transcribed verbatim, resulting 412 single-spaced pages of data. Analysis began with the creation of a list of coding categories. Most of the coding categories arose from the interview protocol, whereas a few coding categories emerged from the data (as per emergent coding methods: [19], [20]). The interviews were then coded using these categories in the qualitative data analysis program Atlas.ti. Namely, relevant quotations related to each code were extracted for each participant. Then, these resulting files were further analyzed, with key ideas drawn out and margin notes made on the resulting files.

5. Findings

Although the participants spanned approximately 20 years in age and grew up in a variety of urban, rural, and suburban settings (both in Ontario and other geographic locales), their experiences with school mathematics were remarkably consistent. Namely, the participants all reported being taught mathematics in a very traditional manner, focused on drill, memorization, and repetition. Mathematics lessons tended to be described the same way – take up yesterday’s homework, copy notes on today’s lesson, and work on repetitive practice problems individually. With regard to resources, textbooks and workbooks were a focus, with only two participants mentioning any use of mathematical manipulatives (which was described as being rare). No participant recalled using computers in mathematics classes, even though most of the younger participants reported using computers in other classes. Basic and scientific calculators were reported as being commonly used in the participants’ schooling, but graphing calculators were only mentioned by a couple of the younger participants. Regardless of how well the participants did in mathematics at the elementary and secondary school levels (Typically, the Grade 4 teachers reported struggling with mathematics, whereas the Grade 8 teachers reported doing well), as educators, the participants all felt that there were flaws in learning mathematics in such a traditional manner, such as a lack of understanding and an overreliance on memorization.

The participants who attended teacher training programs in Ontario in the 1980s and 1990s attended mathematics methods classes that mostly focused on teaching in a manner that was similar to the (traditional) manner in which the participants had learned mathematics as students. For these participants, their exposure to ideas about teaching mathematics in a reform-oriented manner came later in their careers, through attending workshops and conferences, as well as observing colleagues. For instance, Evan initially taught mathematics in a very traditionalist, textbook-focused manner. A few years into his career, he had the opportunity to observe other teachers’ classes and participate in team-teaching in a reform-oriented manner, as part of a multi-school initiative. As a result, he had a significant change in terms of understanding and appreciating teaching in such a way: “My attitude kind of did a 180, like a 360 or whatever you want to call it, after just, you know, having that experience, being in the classroom” (T5, p. 4). In contrast to participants like Evan who attended teacher training programs in the 1980s and 1990s, participants who attended their teacher training programs in the 2000s tended to be exposed to reform-oriented ideas about teaching mathematics, such as a focus on conceptual understanding and the use of manipulatives, during
their studies. For both groups, the initial exposure to such ideas tended to be quite positive. For instance, Fiona shared that her initial reaction was: "I thought it was great! Wow! Why didn’t we have this stuff back in the day?" (T6, p. 6).

Although the participants saw the value in teaching in this manner, most reported taking a few years to begin making changes. For some of the newer teachers, like Caroline, the demands of being a first-year teacher caused her to teach in a more traditional manner than she had hoped. Caroline started moving toward a more reform-oriented manner of teaching once she saw the outcome of teaching in such a way: Her students were more engaged in mathematics and developed deeper understandings. She explained how her teaching philosophy and practice have changed over time: "I think I’ve really grown that way – different ways to see it and different ways to teach it and letting them explore a little bit more, instead of always doing it the old way that we were taught” (T3, p. 13). Indeed, many participants reported that they have continued to move more toward a reform-oriented manner of teaching since they are seeing such positive results with their students. The participants also reported that their own understandings of mathematics concepts have been greatly improved since re-learning and teaching mathematics in such a fashion.

Changes in the focus of the Ontario Mathematics Curriculum in recent years have been a key factor in the changes that the participants have made to their teaching practice. This is particularly the case for the teachers who have been teaching for more than a decade, as prior versions of the curriculum did not have the same reform-oriented focus. These participants found the change in curricular focus, particularly such ideas as “Explain your thinking”, a challenge to implement – due to the participants’ familiarity with teaching in a manner that was more answer-driven (rather than process-driven), and the students’ familiarity to learning in such a way in previous grades’ mathematics classes. Danica noted that, “There is some resistance to that method. We’re meeting… some resistance. And it’s hard! It’s not what we’re used to. It’s new for us. So, our students aren’t used to that kind of learning” (T4, p. 25). Regardless of the challenges, all participants seemed committed to teaching mathematics in a reform-oriented manner, as they recognized its many benefits.

The participants’ interactions with students’ parents typically occurred directly in parent-teacher interviews and indirectly through work sent home with the students. The teacher participants reported that parents were usually receptive to “new” ways of doing mathematics once explanations of the underlying theories were provided, whereas the parents initially tend to “write off” these “new” ways of doing mathematics. Some parents would complain that they could not help their children with mathematics homework – more so than other subject areas – because it did not make sense to them, since it was not done the way they were taught. Gail found that parents would use this as an excuse to “tune out” rather than investigate the mathematics with their children. Danica suggested that the parents’ complaints were indicative of their doing the homework for the students, rather than supporting their learning. Andrea noted that parents tended to become open to the different ways she was teaching mathematics once she explained her reasoning behind teaching the concepts the way she did (e.g., increased conceptual understanding). Indeed, most of the participants related similar stories of having to explicitly explain the focus of the current mathematics curriculum to parents, as they tended to want to do mathematics with their children the way they had been taught – even if they admitted that it had not worked for them! Getting parents to understand the importance of doing mathematics in multiple ways and showing one’s understanding tended to be a struggle for the teacher participants, although some participants found that parents are slowly becoming more accepting of the current ideas in mathematics pedagogy.

6. Conclusions

The teacher participants in this study were initially receptive to the ideas behind teaching mathematics in reform-oriented ways, but they often struggled to change the way they taught due to their familiarity with teaching the way they were taught (even though it often had not worked well for them). Once these teachers, particularly those who struggled with mathematics as students, relearned mathematics in these “new” ways and garnered a much greater understanding, they were far more receptive to teaching in such ways. This suggests the importance of personally experiencing learning mathematics in these ways before a true appreciation of its value can be gained [21], a finding that can translate to attempting to help parents understand today’s school mathematics. To this end, events such as family mathematics nights, group meetings with parents, and parent visits to classrooms may help to inform parents about curricular changes and support them in garnering an appreciation of the benefits of reform-oriented mathematics curricula [22], [23], [24].

The findings broadly point to the delay between curriculum publication and full implementation of the curriculum as intended. In Ontario, the most recent version of the mathematics curriculum at the elementary level was published in 2005, but teachers are still struggling to adjust their teaching practices to align with those suggested by the curriculum. More support and professional development, particularly involving hands-on experiences
(re)learning mathematics in reform-oriented ways, are needed to support curricular changes.

7. References


Session 24: Art Education

Title: The Challenges of Architectural Technology Programmes in Selected Nigerian Polytechnics: A Review of the Literature
(Author: Udochukwu Obiamaka Marcel-Okafor)

Title: Technology as Experience: Use of digital technology in Arts Education
(Author: Vesna Maljkovic)

Title: System Mind and Creative Design Thinking
(Author: Janan Mustafa)
The Challenges of Architectural Technology Programmes in Selected Nigerian Polytechnics: A Review of the Literature

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Abstract

This paper presents a review of literature on the architectural technology programmes in selected polytechnics, and the professional practice of the graduates in Nigeria. Three polytechnics offering architectural technology programmes were purposively selected for the study. Primary data was collected from structured interviews, and the secondary data were collected from copies of the curriculum, refereed journals, books, and reports retrieved from reliable internet sources. The research method involved descriptive and thematic analysis of the curriculum contents used in the schools as well as responses from the architectural firms where the HND graduates from December 2013 to October 2015 worked. The findings of this study revealed that the core courses have prepared the graduates to the limited challenges of designing and drafting. Despite the responsiveness of the curriculum and the teaching methodologies, several challenges continue to hinder the programme ranging from socio-political prejudice which has devalued the entire technical education to lack of financial capacity needed to sponsor initiatives. The paper recommends that a reassessment of the value system is inevitable if the programme in Nigeria must remain relevant in the face of global trends in architectural technology and the emerging roles of the architectural technologist. The paper concludes that tackling the issues of funding for the programme in the polytechnics and increased productivity incentives for the architectural technologists will abate the major challenges of the programme.

1. Introduction

Architectural technology programmes suffer the same prejudice meted out on the entire polytechnic education in Nigeria which is worrisome; this is because of the general preference in Nigeria to paper certification which the university education favourably offers against the technical certification which the polytechnic education offers. This socio-political bigotry against technical education has devalued the entire polytechnic education despite the practice-based learning style inherent in it, which is germane to unleashing the technological potentials and breakthroughs needed for national development in the country.

This paper develops out of a desire to observe if what is being taught and how it is being taught is sufficient to prepare the architectural technology graduate with the necessary cognitive and practical abilities for the present work demands in the field of architectural practice in Nigeria. This is particularly relevant to the country at a period when graduate unemployment rate is at 25% [1]. The United Nations demographic experts have estimated that by 2050 over 70% of the population in Nigeria would reside in the urban centres [2]. Nigeria, with a population of over 150 million people, 70% of who are classified as being poor and, an estimated annual growth rate of 3.2%, remains the fastest urbanising and most populous country in Sub-Saharan Africa.

Over 4000 architects have been registered and are statutorily permitted to practice in Nigeria [3]. The housing sector in Nigeria, where the services of these registered architects and by extension the architectural technologists are in high demand, is predominantly a problem-laden situation presented in qualitative and quantitative forms [4]. The United Nations study declares the cumulative housing shortage at 17 million units and, the ratio of registered architects to Nigerians reveal the dearth of adroitly qualified architectural manpower as well as the daunting pressures on the available ones to handle the predicted urban population explosion and the attendant needs emanating thereof in the building industry in Nigeria. This is invariably of concern to researchers in the field more so in the area of how the architectural technologists are trained, what quality of training are available and how the training acquired facilitates the practice performance of the trained professionals.

The mission of the polytechnic education in Nigeria is teaching, research and public service for the production of quality graduates, innovative information and improvement in technology and the educational objectives are conceived in the effort by individual institutions to produce proficient higher and lower technicians that will occupy the middle level manpower cadre [5]. Architectural technology programmes offered in Nigerian polytechnics are accredited by the National Board for Technical
Education (NBTE), leading to the award of National Diploma (ND) and Higher National Diploma (HND) certificates in Architectural technology.

Albeit, more than half a century has passed since the establishment of the pioneer school of architecture in Nigeria, the challenges facing the programme are not only shrinking the capabilities of both the teachers and students, they also undermine the competitiveness of their graduates in the global market.

With this in mind the study sought to investigate:
1. If the curriculum in use was relevant to the dynamic demands of architectural practice in Nigeria.
2. If the teaching methods are responsive to technological advances with the sole aim of producing proficient graduates who can effectively respond to the work demands in practice.
3. How the training acquired facilitates the practice performance of the graduates.

This was with the intent to establish the core challenges that have affected the programme and contributed to the present dissatisfaction in the system.

2. Literature Review

2.1. Curriculum

The curriculum of architectural technology programme like other academic curricula of professions is the body of knowledge that houses all the experiences, skills, creativity and activities going on in the school environment in order to achieve educational goals [6]. The current curriculum content in the Nigerian schools of architecture is structured to have tutorial courses revolve around studio design which is the core course that carries both the highest contact hours and credit loads [7]. This is also the scenario in the architectural technology departments in polytechnics, where the design studio is both the teaching and learning environment as well as the core course of study of architecture students. This implies that it is germane to the study of architectural technology and as such dependent on the pedagogy and curriculum of the school [8].

It is asserted that since the central issue in architecture is the quality of the human habitat, the goal of architectural education is generally directed towards the attainment of a humane and responsive environment. The extent to which this goal is successfully attained depends on the curriculum content and teaching methods [9]. The structure of the architectural curriculum should aim at giving expressions to and utilizing the factors of socio-economic and technological transformations in Nigeria [10].

The curriculum of the ND and HND Architectural Technology programmes consists of four components:
1. General Studies: These include courses in art and humanities, mathematics and sciences, social and entrepreneurship studies. This component accounts for a maximum of 10% of the total contact hours for the programme.
2. Foundation Courses: These include courses in pure sciences, economics, statistics and account for 10-15% of the total contact hours for the programme.
3. Professional Courses: These include theoretical and practical courses in the field of study and provide the student with cognitive and practical skills needed to practice. Consequently they account for 70-80% of the contact hours for the programme.
4. SIWES for ND programme: the following criteria are used for assessment of this component:
   1) Punctuality
   2) Attendance
   3) General attitude to work
   4) Technical competence
   5) Respect for authority

The professional courses which make up the core courses are grouped into six main areas of study or instruction modules as follows;
1. Architectural design courses
2. Architectural graphics courses
3. Architectural professional administration courses
4. Building construction courses
5. Computer courses
6. Entrepreneurial/ Environmental Courses

2.2. Teaching methods

Good teaching is tuition that results in useful acquisition of knowledge. Good quality teaching requires a good combination of subject knowledge, teaching methodology, psychology of learning and of learners as well as astute resourceful attitudinal orientation characteristic of the teacher [12]. The current teaching method in architectural technology programmes in Nigeria was believed to have developed in Europe and was rooted in two schools: the Ecole des Beaux Arts and the Bauhaus [13]. The former was based on studio oriented design education while the latter ushered in the lecture format to studios and played a complimentary role as the information acquired from the lecture series were intended to intellectually equip the trainees in their studio exercises [7].

Pedagogy-based training enables teachers appreciate the role of learning theory in the plan and purpose of class activities and in the selection and use of instructional technologies [14]. The learning theories which represent hypothetical structures necessary for the assimilation and effective
utilisation of acquired knowledge are crucial to both the application of the teaching methods and the implementation of the curriculum in architectural technology. This implies that the strategies used to impart knowledge and the curriculum must reflect in the output or practice performance of the architectural technologist.

The polytechnics have also adopted the lecturing style of teaching which basically involves passing information orally and remains the exclusive of those in the lecturing cadre while the practical aspects of illustrations and student physical participation are handled by the technologists. The lecture formats commonly used are:
1. The participatory/inquiry method
2. The problem solving method
3. The creative/construction method
4. The case study method

### 2.3. Job requirement and practice performance

The emphasis of this study is on the HND graduate of architectural technology, also referred to as the architectural technologist, and plays the primary role of assisting the architect in rendering services ranging from the outset to the completion and eventual handing over of all building projects to the client. Architectural technologists are the production workers, converting design purpose into substantial information that can be conveyed to the construction team, thereby playing a vital underground role as detailers and dependable data providers crisscrossing design and production boundaries [15]. The indices for assessing the performance of architects and by extension architectural technologists in professional practice refer to those criteria used to measure the extent of services rendered based on review of literature on their responsibilities and further states that no one set of criteria totally explicates their performance [16]. Performance basically as the measurement of what is accomplished in reality, against what is the expected work target [17].

The job requirement for the HND graduate entails:
1. Ability to undertake preliminary site investigation in relation to orientation, landscape among others.
2. Show understanding of basic architectural design principles and methods.
3. Assist in the design and preparation of spatial relationship, circulation and area diagrams.
4. Prepare space programmes and working drawings for architectural projects.
5. Detail simple building components in wood, plastic, metal and concrete.
6. Make presentation drawings of architectural works and draw detailed perspective with necessary rendering and requisite colour scheme.
7. Assist in the supervision of construction works and make progress reports on building projects.
8. Assist in the supervision of maintenance of building structures, assist with cost projections and targets for building projects. The graduates are expected to exhibit proficiency in the use of architectural software packages in the production of the architectural drawings.

The study identified a set of criteria based on the requirements and job expectations of the architectural technologists by their superiors in the architectural firms surveyed and the following made up the bulk of work expectations;
1. Ability to make sketches based on the brief.
2. Ability to effectively incorporate ideas and comments from superiors in the design stages.
3. Effectively produce presentation, perspective and detailed drawings using appropriate software.
4. Ability to produce designs that satisfy the demands in the brief.
5. Ability to produce designs based on standards.
6. Ability to produce designs based on budget and cost estimates.
7. Complete designs within the target time frame.
8. Ability to assist in supervision of construction works.
9. Ability to relate cordially with other members of the construction team.
10. Ability to make progress reports.

### 2.4. Challenges of Architectural Technology Programmes in Nigeria

Studies have revealed that there are numerous factors that confront the programme in Nigeria, foremost being the attitude of the Nigerian society to the entire polytechnic education which has continued to devalue and relegate the programmes and products to a pitiable state of redundancy. The new entrants experienced gratuitous bottlenecks in the registration and entire course of the programme which range from problems of accommodation to schoolwork pressures and having to work under very inclement conditions chiefly caused by incessant and erratic power supply [18].

The over extended period of tutelage training being part of the process of preparing and writing the Professional Practice Examination (PPE), a prerequisite for the professional registration and certification to practice have also been listed as one of the challenges. In the opinion of [10], the need for a new direction in architectural education in Nigeria, emphasizing that the fundamental mission of a new educational structure is to overthrow the vestiges of the Beaux-Arts model which outlives its relevance after providing the basic knowledge of architectural study. The need for an educational structure relevant
to the concept of architecture as a cultural phenomenon particularly at the second and terminal level of study became necessary considering the dynamics of the Nigerian milieu.

In [19], the challenge of unemployment after graduation was stated and it suggested revisiting the curriculum specifically to integrate self-employment strategies. According to [20] and [8], there is the need for an improvement in the architecture curriculum to address the challenges of housing inadequacies, squat control and other environmental dilapidation issues as well as a review particularly in the design studio to inculcate further sustainability studies with the view to enhance environmentally-conscious design techniques. Rightly, [21] observed that the present arrangement has not provided the scope to enable the graduates efficiently discharge their functions and train further to become experts and specialists without unnecessary obstructions.

The current universal change of educational curricula in most fields of human endeavour have compelled stakeholders in the profession to clamour for a paradigm shift in architectural education programme which included a restructuring of the curriculum to effectively respond to the challenges of architectural practice in the third millennium [9] [22] and [23].

3. Research Methodology

The purposive sampling technique was used in the selection of three government owned polytechnics that offer Architectural Technology programme in Nigeria. The polytechnics are the Federal Polytechnic Nekede, Owerri, Abia State Polytechnic, Abu, and Ken Saro- Wiwa Polytechnic, Bori Rivers State. Primary data were obtained using structured interviews administered to the tutorial staff of the selected polytechnics, and the architectural firms where HND graduates from December 2013 to October 2015 worked, while physical observation was used to compliment the interviews. The interviews focused on teaching methods used in all three polytechnics, assessment of performance of the graduates in practice on a five-point scale as well as challenges encountered. Secondary data were obtained from academic curriculum for architectural technology programmes of the selected polytechnics, refereed journals, some reports available from reliable internet sources and books.

The intention of this literature review was to analyse courses presented in the curricula with regard to the job requirements and expectations of the graduates to ascertain their relevance to present day architectural practice. To effectively measure the practice performance of the graduates, the study examined the benchmark for ascertaining work expectations as stipulated in the NBTE regulated curriculum for architectural technology programme and the actual work requirements and achievements in the professional practice.

4. Findings

1. All the three departments of architectural technology are in government owned polytechnics and have been fully accredited at both the National Diploma (ND) and Higher National Diploma (HND) levels by the National Board for Technical Education (NBTE) (see Table 1).

2. The NBTE minimum standard provides the uniform benchmark for the curriculum contents in the three schools, all three departments have fully integrated the entrepreneurial courses in line with Government policy, and slight variations exist with the inclusion of architectural appreciation and theory and environmental science in the first semester of the HND I and HND II programmes respectively at the Federal Polytechnic Nekede which were both after the curriculum review exercise carried out internally in the school. (see Tables 2 & 3 space efficient methodology driven workstations.).

3. Lecturing is the predominant teaching method, the lecturers are freely disposed to any of the lecture format; creative/constructive method, problem solving method, inquiry method and case study method which again depends on the course outline and class size (see Table 4).

4. The studios in all three departments serve dual purpose of classroom and drawing room and are all furnished with the traditional drawing tools comprising mainly of drawing tables with T-squares and stools. The departments do not have dedicated modelling and computer rooms as they jointly use the school facilities. Consequently, staff and students are encouraged to have personal laptops (see Table 5).

5. The study revealed that courses taught in the schools are relevant and responsive to the work expectations of the architectural practice. However, major challenges were on; Supervisory roles at the construction sites as practical knowledge gained in the schools did not expose them to real life activities (see Table 6).

Table 1. Showing background information of selected institutions

<table>
<thead>
<tr>
<th>Name of Institution</th>
<th>Federal Polytechnic Nekede, Owerri, Imo State</th>
<th>Abia State Polytechnic, Aba</th>
<th>Ken Saro-Wiwa Polytechnic, Bori, Rivers State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of establishment</td>
<td>1978</td>
<td>2007</td>
<td>2012</td>
</tr>
<tr>
<td>Ownership Status</td>
<td>Federal government</td>
<td>State government</td>
<td>State government</td>
</tr>
<tr>
<td>Programmes offered</td>
<td>ND-HND</td>
<td>ND-HND</td>
<td>ND-HND</td>
</tr>
<tr>
<td>Accreditation Status</td>
<td>Fully accredited</td>
<td>Fully accredited</td>
<td>Fully accredited</td>
</tr>
</tbody>
</table>
The study reveals dearth of facilities in all three institutions as most laboratories and workshops are shared with other departments at the school level. A situation that is regrettable considering practice-based learning style inherent in the polytechnic and essential for technological advancements to prosper.

The HND graduates assessed revealed high proficiency in design oriented tasks and poor ranking on ability to work with site workers as well as poor report writing. This is due to the fact that the site workers were generally reluctant to receive instructions from them owing to age and experience. They were also generally expected to give their reports orally which explained the low ranking for written report.

Latent challenges that were generally referred to but which the scope of the study did not consider included: securing funds to develop outstanding design proposals, and the general economic downturn in the country that has hampered activities in the building construction industry.

5. Discussions
Table 6. Assessment of the HND graduates working in architectural firms

<table>
<thead>
<tr>
<th>Criteria for assessment</th>
<th>Courses that target the collection</th>
<th>Mean score at architectural delineation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to make sketches based on the brief.</td>
<td>Architectural Design</td>
<td>4.15</td>
<td>very good</td>
</tr>
<tr>
<td>Ability to incorporate superior comments</td>
<td>Architectural Design</td>
<td>4.55</td>
<td>excellent</td>
</tr>
<tr>
<td>Ability to produce drawings using software.</td>
<td>Construction Drawing, Architectural Delineation, Application of Computer in Architecture IT</td>
<td>4.90</td>
<td>excellent</td>
</tr>
<tr>
<td>Ability to produce designs that satisfy brief</td>
<td>Architectural Design</td>
<td>3.80</td>
<td>good</td>
</tr>
<tr>
<td>Ability to produce standard designs.</td>
<td>Architectural Design &amp; Professional Administration</td>
<td>3.65</td>
<td>good</td>
</tr>
<tr>
<td>Ability to produce cost-effective designs</td>
<td>Architectural Design &amp; Estimating and Tending</td>
<td>3.95</td>
<td>good</td>
</tr>
<tr>
<td>Complete design within the target time frame.</td>
<td>Architectural Design &amp; Professional Administration</td>
<td>4.20</td>
<td>very good</td>
</tr>
<tr>
<td>Ability to maintain supervision of construction works</td>
<td>Construction Methods, Principles &amp; Practice of Building Technology</td>
<td>3.05</td>
<td>fairly good</td>
</tr>
<tr>
<td>Ability to work with other members of the construction team</td>
<td>Technical Report Writing</td>
<td>2.60</td>
<td>fair</td>
</tr>
<tr>
<td>Ability to make progress reports</td>
<td>Technical Report Writing</td>
<td>1.50</td>
<td>poor</td>
</tr>
</tbody>
</table>

6. Recommendations

The following recommendations are proposed:
1. Adequate provisions of infrastructural facilities to effectively implement the shift from traditional method of teaching and learning to the modern method which will encourage assimilation of design and technological advances of the 21st century.
2. Collaboration of polytechnics in the regular periodic review and implementation of the curriculum so as to have a common curriculum especially for core courses where minor variations can be obtainable in the electives.
3. Courses on strategic policy-making and implementation should be introduced since the architectural technologists are responsible for practical skills and represent the work-horses of architectural practices. They should be taught how to strategically deliver services as well as assist in policy-making of housing delivery.
4. There needs to be a paradigm shift in the value system for polytechnic education in the country which will contribute intensely to socio-economic development in Nigeria by way of placing the technical education in its right place and encourage more individuals to opt for the polytechnic education and receive job satisfaction through enhanced productivity.

7. Conclusion

This paper has documented the current curriculum contents of some polytechnics in Nigeria as well as the job expectations of the architectural technologists. Based on the literature it is critical that training the professionals that are involved in the housing delivery services must be inclusive, buoyant and in line with modern advances in design and technology in order to attain far-reaching results. The results will include effective amelioration of the housing conditions in the country, increased patronage of technical education and overall national development and productivity.

8. References


Technology as Experience: Use of digital technology in Arts Education

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Abstract

Since the late 1990’s, Vancouver continues to sustain its position as a leading North American centre for digital arts industries [1] and the number of job opportunities within those industries is on the rise [2]. According to a recent article from the Tech Vibe [3], “Vancouver alone has more than 800 companies in digital film, animation and visual effects, video games, mobile content and applications, and e-learning. These companies are generating $3 billion in revenue annually” (p.1). As a result of this industry demand, many local public and private postsecondary institutions offer a range of educational programs, from one-year and two-year certificates and diplomas, to bachelor and graduate studies. After a recent visit to one of the local digital arts institutes specializing in fields such as animation, visual effects and game art and design, the BC Council for International Education team [4] reported that from game design to 3D animation and visual effects, Vancouver’s digital arts schools are on the world map. Students graduate with skills that are high in demand and companies open doors here just to tap into the local talent.

My role as an Academic Director for the Digital Arts department at the local postsecondary institution allows me to anecdotally note an increased number of enrolled students in digital arts programs. However, despite the excellence in teaching and award winning curricula [5], I have observed that digital arts students often face numerous issues when it comes to educational experiences and graduate outcomes. Due to the fast paced industry’s needs and job opportunities, students are expected to master artistic skills often within the duration of these programs without any previous experience or knowledge. And, often during this process, they rely heavily on digital technology. This novice digital artists’ dependence on technology usually creates settings where technology is a learning focus, which often detract students from opportunities to learn how to engage in an artistic process and express artistically.

A popular way to address this concern and to prevent this growing habit would be to postpone students’ use of technology in their artistic processes. In other words, students would be required to map their artistic expressions first and then choose suitable media for the proposed projects to enhance their creative skills and final outcomes. However, can concepts from critical pedagogy inform the digital age arts educators so that they could facilitate the integration of the younger generation into art as experience or will it become the practice of freedom with unanticipated results? The purpose of this paper is to explore how digital arts students can be supported by educators in their artistic journeys to meet their needs and expectations.

References


System Mind and Creative Design Thinking

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Abstract

One of the key strategic aspects of creative design thinking described by Nigel Cross is taking a broad systems approach or what is called "system mind." This paper aims to clarify the "system mind" in the design process, through which novel architectural design concepts can be achieved. The general problem is to reveal the places where the system mind is used in the design process. The characteristics and context of this strategy are reconstructed from previous literature. Based on the analytical approach a case study has been conducted, and the indicators of system mind have been identified within the general frame of creative thinking. The results show that system mind is used twice effectively while shaping the body of a holistic design concept.

1. Introduction

In his book "Design Thinking", Cross studied the way of thinking of three innovative designers and came up with three approaches of creative thinking, which appear to be common to all the innovators he studied: (1) taking a broad systems approach to the problem (System Mind), (2) framing the problem in a personal perspective, and (3) designing from first principles.

Cross has clarified the systems approach by adopting Maccoby's definition of "a system mind": "The innovator has a system mind, one that sees things in terms of how they relate to each other in producing a result, a new gestalt that to some degree changes the world." [1].

This definition clarifies that the systems approach is used while solving design problems, it is concerned with producing the solution rather than the structuring of the problem. Maccoby differentiates between an innovator's holistic approach of solving the problem and an engineering partial approach of developing solutions:

"...For example, one can think about a car in terms of all its parts working together to make it go....In contrast, most engineers do not think in systems terms. They are concerned about designing a good piece-part, like a clutch.'" [1].

John Pourdehnad emphasized that designers should learn how parts interact rather than looking at their performance independently [6]. Cross further explained his point of view of the broad systems approach and projected Maccoby's definition of a system mind on his own case studies of innovative designers.

He concluded that these designers have a holistic view of the problem; goals such as winning the race is a larger picture of developing a pit stop for a racing car by the innovator Gordon Murray, or easy use and maintenance is a general view that facilitates the development of Frister & Rossman's new sewing machine by innovative designer Kenneth Grange.

Grange perceived the problem of designing a new sewing machine from the user's point of view rather than accepting the brief as given from the client. The brief was concerned with introducing a new look to a sewing machine; Grange however shed light on another part of the problem, that is the easy and pleasant use and maintenance of the machine, and he developed a machine that facilitated ease of use and in turn achieved a new style or form of machine.

2. Parallel Lines of thought and the systems mind

Bryan Lawson has interviewed many internationally respected architects and noticed that good architects keep "parallel lines of thoughts" while carrying through the design process. While citing Lawson's study, Cross mentioned that these thoughts are relevant to the same job at the same time and that designers use them to cope with uncertainty. Cross clarified the parallel lines of thought by bringing one example of Lawson's case studies that is Robert Venturi's Sainsbury Wing extension to the National Gallery in London.

The American architect kept two lines of thought throughout the process: one was how to deal with the circulation of the extension in relation to that of older exhibition spaces, and the second line of thought is how to relate the form of the new extension to the old/historic context of the site. Further, Bryan Lawson in his paper "Parallel lines of thought" described the parallel lines of thought as 'modes' with different 'features' in which the designer keeps thinking separately and might have many features for each but at the end there must be one solution. He considered the moment of gathering the lines into
one solution as one of the most critical time for the designer:

These parallel lines of thought are solution directed/focused rather than problem directed or focused, or they are concerned with the form of the solution rather than the structure of the problem. Jane Darke, in her study of the design process, found that designers create solutions before they have even understood the problem; they actually understand the problem by solving ‘hypothetical’ solutions; she called them the primary generators (Cross calls them tentative solutions).

They acted as hypotheses enabling the architects to explore the inadequacies of their yet ill-formed solution and through this to learn more about the problem.” [5]. While working within the space of the primary generator, designers suggest many possible solution ideas before reaching one possible solution; they can stay in parallel for a time [5].

Here, some detailed study is needed to explain the formation of the lines of thoughts and answer the question of content. This paper is going to make use of a specialised study in architectural programming.

3. Architectural programming and system mind

Donna Duerk [2] developed an issue - based programming tool to manage the early stages of the design process. This tool manages the relevant information and develops a strategy of a coherent structure for the information hierarchy.

The structure starts from categorising the project facts into groups in order to define the issues of interest, which are then filtered through consideration of both the client’s and the designer's values. The structure proceeds towards developing design goals and the related performance requirements, until partial design concepts/solutions are reached [2], see Figure 1.

In this context, Duerk asserts the importance of developing an overall concept that governs the design process: she calls it an organisational concept (super organising idea, mega concept, theme, or parti); it can be used at every scale and stage of design because it has the capacity to overlap with issue concerns [2].

By reviewing the tree diagram Figure 1 one can trace the lines of thought passing through various activities to develop a hierarchy of partial concepts. Such a hierarchy captures one aspect of system mind which is the interconnections between activities that develop the partial design concepts.

Is it possible for one partial concept to dominate the design and let all lines of thought go under it? How could this happen? We need to know how and where the system mind can take place and make it possible to think in partial solutions/concepts in terms of how they relate to each other and to the whole. Does the system mind have any role in the formation of the organisational concept?

To answer all of these questions we have to explore the design process and indicate the places where the system mind takes place. The exploration of the process can be achieved by conducting an analytical study of a creative design project. The tree diagram of Duerk can be used for analytical purposes because it is an issue-based model.

Although it can answer the question of the content (what to do and what to deal with; issues; goals; design concepts), it does not have the capacity to tell us how to design nor does it have the capacity to show the critical decisions that lead to creative solutions. Apparently, an operational definition for the system mind should be developed, then to be applied in a practical case study and finally to be presented using Duerk’s diagram.

4. System mind: operational definition

Jon Kolko is concerned with the synthesis in the design process. In his study [4] he explained how patterns of thoughts are formed from a chaos of data and information. Designers attempt to find relationships or themes in the available data to reveal a hidden meaning that is applicable to the design task.

Kolko sees that the process of synthesising a meaningful whole is due to sense making, which is an internal process. Sense making is necessary not only for finding connections between elements but also for forcing an external view on things. [4].

In this way, sense making is a cognitive operation that can put designers’ expectations on a path or into a track by forming connections between what is available.

A strong mental model has to be built out of vast data by finding connections between seemingly unconnected information. Searching for patterns of connections among mountains of information demands two things: being selective in choosing the
information and being able to see information in one design space. [4]. Having found a pattern or patterns of thought, designers seek for an external idea that gathers all the patterns into one whole.

In order to find this idea or concept, designers have to experience “abductive reasoning” with which a hypothesis/idea not related to the body of the premises / data or external to the data in hand is concluded. This possible solution-idea is a kind of concept under which all information (data, goals, issues arising from the analytical stage) are adjusted and controlled.

Kolko referred to two theories attempting to explain how “abductive reasoning” comes to designers. There is Peirce’s theory of fallible insight experienced “like a flash”. Kolko explained the circumstances which make it possible for this flash to take place: this gathering of things which (he) “had never before dreamed of putting together.”

The other theory is that of Johnson Laird: he came up with an opposing argument. He claims that in the context of creative problem solving the insight is developed, but does not come as a flash, rather in a process of four steps [4]:

- The constraints of the existing strategy failed to solve the problem.
- New constraints suggests an implied consideration
- Enlarging the problem space to allow for further considerations to take place
- Further changes to the constraints can lead to solving the problem

In any of these approaches designers experience three cognitive operations necessary to produce a design solution; these are [4]: prioritising (not all the available data are of the same value, designers subjectively put data into a prioritised order in way that seems reasonable to them), judging (determine what is most significant in the current problem solving context as not all of the data are relevant), and the forging of connections (find relationships between the discrete elements of data).

Kolko further explained the role of forging the connections in inducing a hypothesis based on inference and producing new knowledge. When they combine new elements extracted from a previous designer's experience with existing elements, designers seemingly are using the abductive way of thinking.

Apparently a broad systems approach implies two cognitive operations:

- Enlarging the scope of the problem to go beyond what is given
- Forging connections where one sees things in terms of how they relate to each other

As has been mentioned earlier in this paper, Donna Duerk, in her study of managing the design process, has introduced an issue-based programming model-the tree diagram-which can show the development of partial concepts at the early stage of the project. This paper is going to use the structure of this model as a tool to present the analysed data from the project. The aim is to find the places where system mind is used in this model and discover the hidden steps in the structure that lead to creative solutions.

Enlarging the scope of thinking and forging connections are going to be used as mechanisms to show the places where system mind is used. The increase in the number of parallel lines of thoughts and/or the development of new lines within the same line of thought are going to be used as indicators for the first operation (enlarge the scope). As for the second operation (forging connections), the combined lines of thoughts are going to be used as indicators.

The occurrence of abductive reasoning is going to be used as an indication of the efficiency of using system mind. It can be explored by comparing between those partial ideas and concepts of each line of thought on the one hand and the resultant holistic design concept on the other.

If this latter is different from them or not related to any of the ideas that have generated it, which means the insight has taken place and the system mind is used effectively.

5. Explore the System Mind in the Design Process

In order to achieve the goal of revealing the places where system mind can be used while designing, we need to find a case study in which the designer describes the way of developing the design. This paper is going to analyse the UK Pavilion project in Expo Shanghai 2010 by Thomas Heatherwick.

He describes his design in Ted Talk, the video and the transcript of his talk are available on line (https://www.ted.com/talks/Thomas_heatherwick); this description is a documentation of the way he thought about his project. The transcript of his talk and also some other references of critics are going to be used in order to build a whole picture of the way he tackled the design problem.

This architect is famous for searching for beauty by use, and this project is almost a symbolic one.

However, Heatherwick intended to design an iconic form that is pleasant in both appearance and use, Figure 2 shows picture of the pavilion.

Figures 6 and 7 show the parallel lines of thought. They start from the premises of the brief which include issues highlighted by the client and from site analysis as two main factors on which to focus.
The designer declared goals related to these issues, Figure 3. For symbolic issues, the brief of the client (the UK Government) is to design a pavilion that would be iconic and represents the UK's cultural and commercial ambitions; it should simply represent the UK. The architect declared that his goal is not to represent the UK heritage directly: Rather than showing a range of UK expertise or falling into the trap of showing parts of UK heritage, The architect decided to highlight the role of Britain in integrating nature into the city. The source of this idea is the theme of the Expo 2010 'better city, better life'. [3].

6. Organising Concept

Figure 4 shows the structure of the organizing concept. The designer extends his search into the issue of the problem frame, trying to find an interesting point to highlight. By returning to the history of planning in London he found that London was a pioneer in developing public parks in the city. Victorian parks in London were the first parks in Europe. Apparently, the designer widens the scope not horizontally but vertically in order to be more specific in identifying clearly a possible concept. He digs deep into the framing issues looking for areas of interest in this frame by answering questions of what, where, when, how. This step is essential for developing a kind of concept that is called the "organising concept."

He found that "the UK was the first country to open a major botanical garden- the Royal Botanic Gardens at Kew" where a seed bank was established to collect the seeds of world wild plant species.

Here the designer found an interesting point that was hidden from and on which he wanted to shed light; it is not the trees of the Victorian parks, nor the flowers but it is the seeds. Nobody before has thought about it: The designer wanted to represent the Kew seed bank, he said it is simply "a seed Cathedral."

Representing Kew’s seed bank becomes the organising concept, and a displacement of the concept has taken place when the designer used the metaphorical phrase "seed Cathedral"; it is simply a Cathedral / Pavilion. Apparently, the insight occurs and the abductive reasoning has taken place. Returning to the diagram, Figure 4, it shows that this concept of a Cathedral does not have any
relationship or associations with any of the goals or ideas developed in the previous step.

The two cognitive operations that indicate the system mind can be found easily:
- the concept of the Seed Cathedral comes just after increasing the information by digging deep vertically into the frame. This helps the designer in being more selective when choosing what is unique and distinct.
- forging connections; there is a combination between two lines of thought: the designer combined both the thematic ideas of Nature/Park/Seeds with the idea of no separation between the displayer and displayed. This latter has been developed as a programme goal idea. The designer solved the problem of what should be displayed and achieved the goal of making the structure as a direct manifestation of what was to be displayed.

At the bottom of Figures 3 and 6 another two lines of thought have been developed, they are parallel to the line of the organising concept. The first one is the concept of "the structure that can move in the wind." This line emerges from the combination of two ideas: the use of structure/envelope language, which is part of the designer's point of view in defining architecture, and the idea of making use of waterborne breezes from the river. The second line of thought started with developing the economic goal of "making affordable use of space" by occupying only a small part of the plot with the building and leaving the rest as a landscape. This leads later to the idea of using landscape as an interactive space for visitors. In this way three strong lines of thought have been developed, see Figures 6 and 7.

7. Performance Requirements

Working on the organising concept has led to the identification of the performance requirements of the spaces, Figure 4. It also leads to making a displacement to the definition of "Pavilion": shifting the pavilion beyond the common definition of what a pavilion is about. The displacement is achieved by selecting certain properties and characteristics of a Cathedral and shifting the common definition of a pavilion towards them. The characteristics of a cathedral chosen for this shift are related to the symbolic meaning of the cathedral, and to be more specific, it is the thing that makes it an Icon.

The pavilion is now something very large, a calm space or building almost the same as the Iconic building and divine sanctuary of a cathedral. It is a large volume space with reverence and silent interiors and its structure is that of a displayer, it is almost ornamented in a way similar to the "Gothic Cathedral" where the structure is ornamented like sculpure, the structure of the pavilion is to display the seeds.

So this shift has occurred as a result of thinking into the organising concept in terms of how it could produce something Iconic, a line of thought that has been established as a response to the client requirements (See Figures 3 and 6, first column of premises). That means the designer has experienced one of the operations of the system mind, namely forging connections. The designer induces the performance requirements from this new definition of the pavilion as an Iconic monumental and silent construction that displays itself instead of having collections other than the seeds.

Most of the performance requirements and their developed ideas are related to the induced new definition of Pavilion:

Relaxing calm spaces with no separation between the displayer and the displayed... and the seeds should be displayed in spacious manner rather than appearing like a pile of nuts. The last performance requirement is to provide space for visitor interaction (See Figures 5 and 6, column performance requirements, last line), it has a connection with the goal idea of achieving an affordable space. Here also the operation of forging connections has been experienced by combining two lines of thought: Iconic building plus affordable space.

The designer suggested possible concepts/ideas for each of the performance requirements. The first four suggested ideas that can introduce a pattern of connections. It is obvious that this pattern of connections leads to the emergence of the applicable solid design concept; a box structure covered with waving "hair"; acrylic rods that can move in the wind, see Figure 6.

8. Applicable Design Concept

The form of the waving hair is not one of the partial ideas of the discovered pattern, which is developed from the performance requirements, Figure 5.

Abductive reasoning is used here, thus the insight takes place and introduces the hairy box/structure, which almost looks like autumn seed blowing in the wind.

Apparently the designer has connected three lines of thought together to introduce the holistic applicable design concept (See Figures 5, column title: Partial Design Concepts). While the first two lines are developed from the architect's previous experience in texture architecture, the third line of thought has been developed by connections with the site factor, which is the location beside the river bank, and the developed goal. The first line of thought is the idea of (seeds trapped into acrylic rods, rods to be cast into the structure, they can act as light tubes to bring daylight to the interior). The second line of thought deals with an idea of "the finished surfaces look like as drawings that have
been rendered." The final connection is with the concept of providing a kind of soft and crunchy landscape.

It seems that the designer has worked on the first principle of design to produce his final form. The principle here is a structural one. Thomas Heatherwick’s interest in texture architecture and also his definition of architecture as an envelope or skin are what give this form its organic ‘hairy’ look. The designer makes another shift in thinking by dealing with his cathedral ornamentation in a different way. The structure now is not decorated with ornaments rather the ornaments acrylic rods are the skin or envelopes that are cast into the structure and can change the texture and appearance of the skin when they move. There is now no boundary between structure - envelope, the server - served.
9. Developed structure of creative design thinking

Figure 8 shows a developed structure of creative design thinking. It reveals two gaps in the structure of Donna Duerk Diagram, in which innovative designers take steps that lead to creative solutions. The first gap comes after forming the goals, it includes the following steps: framing the problem, enlarging the scope of thinking, forging connections to induce the organising concept, and digging deep into the organising concept to make a displacement. The second gap includes these steps: provide partial design solutions, forging connections, recognise a pattern of thought/ holistic applicable design concept.

10. Conclusions

The two operations of widening the scope and forging connections have been used throughout the process; however, they have been used effectively in two places when designing the concept. Abductive reasoning has been used and the corresponding insight has taken place twice; that is in developing the organizing concept and also in developing the applicable design idea, see figure 7. The study also finds that forging connections has been used by accumulation in terms of combining additional lines of thought to the ideas in hand.

The structure of managing the design process introduced by Donna Duerk has been used successfully to show the lines of thought of the designer. While analysing the case study, the structure has been developed to reveal the hidden steps of creative thinking. Figure 8 shows the developed new structure of creative thinking used to manage the design process. It should be stated here that the linear structure does not mean that the process is linear; it is only used to clarify the steps. The first row shows Duerk’s structure, the second and third rows show the developed parts. The second row illustrates the first part of hidden steps, which distinguish the creative thinking using a broad systems approach or system mind system. These steps come after developing the goals and their related ideas. They include:

- framing the problem where the first shift in thinking occurs by changing the constraints of the given problem. The designer delivers a statement that shows his/her own point of view;
- widening the scope of thinking; after selecting the part of the problem which would be in focus, the designer enlarges the scope of thinking by digging deep into the problem to shed light on the hidden part which has never been seen before and highlight it;
- the organising concept is induced by enlarging the scope of thinking in the previous step and also by forging connections, which is the second cognitive operation of system mind. In this case study the organising concept comes in the form of a metaphor.

It is noticed that the designer used the metaphor to develop the super organising concept (Seeds Cathedral), and also in describing some partial solutions. For example, describing the way of creating the pavilion entrance as shaving, "....you know when a pet has an operation and they shave a bit of skin and get rid of the fur-- in order to get you to go into the seed cathedral, in effect, we’ve shaved it." (TedTalk.transcript.https://www.ted.com/talks/thomas_heatherwick).

Another example is the technique used to cast the acrylic rods into the steel structure is described as "the growing hair" of a famous toy that has been used in TV advertisements. This might be related to the designer's own interest in metaphor.

- displacement of the concept: it can be seen that the development of the organising concept has led to the displacement of the concept of the pavilion, which in turn suggested new qualities and performance requirements for the building.
The third row in figure 8 shows the second part of the hidden steps of creative thinking, these include:
- development of partial solutions /partial design concepts
- development of a holistic applicable concept that is the physical design concept.

In revealing this second gap, the study discovers that there is a pattern of connections appearing among the partial design solutions and this leads to the emergence of a holistic applicable design concept. The study also discovers that the designer works on the first principles of design in order to reach an overall image of the applicable design concept. This finding confirms what Nigel Cross has suggested as a conclusion in his study for innovative designers. He considered working on the first principles of design as one of the three key strategic aspects of creative design thinking.

11. References


Session 25: Inclusive Education

Title: Psychological Adaptation of College Students with and without Disabilities
(Author: Sheng-Min Cheng)

Title: The Effectiveness of Dialogic Reading in Enhancing Language Ability in Children with Language Delay
(Authors: Chun Ting Yip, Anthony Yuan)

Title: The Contribution of Education through Art to the Inclusion of Pupils with Special Educational Needs - A Comparative Research on Inclusive Education
(Author: Tereza Ventura)
Psychological Adaptation of College Students with and without Disabilities

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Abstract

The focus of this research was to explore the psychological adaptation of college and university students. First, the differences of psychological adaptation between the college students with and without disabilities were examined. Then, I explored the differences of psychological adaptation of regular students and disabled students by demographic variables respectively. A sample of 1,407 undergraduate students was taken from 75 universities. All participants completed a demographic information sheet and the College Students' Psychological Adaptation Scale. The result showed that the typically developing students scored higher in each index of adaptation than their peers with disabilities did except the index of self-confidence and competence. Besides, all demographic variables, gender, academic area, and grade, would make no effect on psychological adaptation of students with disabilities. However, gender and academic area, would make significant differences on some indexes of psychological adaptation for students without disabilities. The study provided implications for future to explore the relationship between psychological adaptation and demographic variables, discover critical variables regarding psychological adaptation for undergraduates, develop instruments to identify the needs in college students with disabilities, and develop support programs that enable college students to enrich their learning experience and life at campus.

1. Introduction

University students, traditionally between 18 and 22 years old, are in a development stage facing the transition from adolescence into early-adulthood. The purposes of higher education tends to help students to prepare for better jobs, meeting construed economic needs, and fostering critical thinking, multicultural understanding, and civic responsibility [1], but for undergraduate students, their development goals might focus much more on personal, economic, and family for their higher education [2]. However, the actual college life with more academic demands, greater autonomy, and lower level of academic structure presents students with numerous novel challenges [3]. Under the pressures of unknowing challenges, researcher indicated that many students are unable to complete their studies in college [4]. A study of psychological adaptation may be essential for college students in that the studies provide a better understanding needed to enrich their learning experience and life at college campus.

The importance of psychological adaptation to college is not only for regular students, but also for students with disabilities. Today, there are more students with disabled studying in colleges or universities. In Taiwan, the number of undergraduates with a disability increased from 9,302 in 2008 to 13,711 in 2016. When Education for All (EFA) is an international commitment to ensure that every child and adult receives basic education of good quality, also influencing the colleges and universities to achieve of high-quality education for all learners, including the individual with disabilities [5], colleges and universities continue to face issues in meeting the needs of growing numbers of students with disabilities.

To achieve excellence in higher education for all learners, understanding the psychological adaptation of college students is the first step in the process. It has been reported in study that the students who experienced difficulty in their adjustment to college might benefit from counseling or other remedial interventions [6]. Baker and Siryk classified prior research on students’ adjustment to college as falling into four broad categories: academic adjustment, social adjustment, personal–emotional adjustment, and institutional attachment [6]. Their study would be focused on the cognitive and affective dimensions of adaptation. There are plenty of studies examining psychological adaptation of typically developing undergraduates but it is rare to see such attention to undergraduates with disabilities that still remains a challenging study.

There were two purposes of this study. The primary goal was to examine the differences of psychological adaptation between the college students with and without disabilities. A second goal was to study psychological adaptation of these two
groups by demographic variables. It is expected that this study can contribute to future work in better understanding of the psychological adaptation of undergraduates and support programs provided to meet their needs.

2. Literature review

Psychological adjustment was a type of mental disorders which would endanger students’ quality of daily life and mental health [7]. Avoiding to misleading the negative impression by adjustment, we used the term, adaptation, to describe the psychological performance of college students in this study.

Clinicu’s study pointed out that male students were better adjusted to university life, and contained a better personal-emotional adjustment, but a compensatory better academic adjustment for female students [4].

Wang and Zhang examined the psychological adjustment among college students in China. They found the scores of male students were significantly higher than those of girls’ in the physiological adjustment, learning adjustment and social adjustment. On the interpersonal adjustment, the score of the female students is higher than that of the male students’. Their study also indicated that the scores of students majored in Music were significantly higher than the scores of students majored in Science and majored in Arts. The scores of students majored in Science were significantly higher than the scores of students majored in Arts. Analysis of variance also revealed the adaptability of college students exists significant differences in grade [7].

Martz conducted a follow-up study about community college students with disabilities to examine the change for their adaptation scores one year after initial assessment. The results indicated that there was no overall significant difference to disability in one year [8].

Adams and Proctor’s study found that the students with disabilities were more at risk in their overall student adaptation to the college experience, social adjustment, and institutional attachment to college. However, the students with disabilities did not differ significantly from their non-disabled peers in personal/emotional adjustment. Moreover, their study indicated the insignificant difference in academic adjustment between the individuals with disabilities and those without disabilities [9].

Sheu, Shaow, Wu, Lin, and Chen investigated adjustment of campus life among university and college students with visually impaired, hearing impaired and cerebral palsy in Taiwan. They indicated that college students with disabilities contained difficulties to academic study and socialize with others. In addition, some disabled students had no ideas about their careers in the future. They also found that the support service in university and college would match disabled students’ individual needs. Finally, the study showed the College Entrance Examination for Disabled Students provided more chances for students with disabilities to study in university and college [10].

Chen used Psychological Adaptation Scale to collect data from 212 college students with disabilities on 12 universities in Taiwan. He found that the status of psychological adaptation for these disabled students were higher than moderate [11].

3. Methods

The participants and their demographic characteristics, the instruments and their information, and the technique of data analysis were explained as follows.

3.1. Participants

The primary purpose of this study was to understand the psychological adaptation of college students with and without disabilities. The distribution of college students with disabilities was the main consideration in the sampling process. Stratified cluster sampling was adopted in the study. First, the Taiwan region was divided into northern, middle, southern and eastern, four areas. Second, the total amount of the disabled college students in each area was calculated from the Special Education Transmit Net. After considering the amount ranges of the disabled students between 1 to 287 in every university and students might refusing to participate the study, the university contained more than 30 disabled students was chose into the sample pool and arranged in random order in every area. Besides, the 15 students with and without disabilities would be invited into this study respectively in each university. Then, according to the sequence, researcher described the purpose and process of the study to the resource room staff in each university by phone for getting the agreement to forward the questionnaires to their disabled students with and without disabilities. Finally, there were 30 universities in northern area, 18 university in middle area, 24 universities in southern area, and 3 universities in eastern area, totally 75 universities and institutes’ resource room staffs agreed the assistance in data collection. Researcher mailed the questionnaires and participants’ gifts to resource room staffs. The resource room staffs transmitted the questionnaires and participants’ gifts to their disabled students as much as possible in gender, grade, and categories of disability, and these disabled students’ same-sex peers without disabilities. The resource room staffs would mail the completed questionnaires to researcher in three weeks. Total 1,407 undergraduate students participated in this
study. 688 (48.9%) were male and 719 (51.1%) were female. 692 (49.2%) were regular students and 715 (50.8) were disabled students. There were 346 (24.6%) studied in schools of Humanities, 690 (49.0%) majored in social sciences, and 371 (26.4) were STEM. The sample characteristics of the students with and without disabilities were showed in Table 1.

Table 1. Demographic characteristic of the participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Regular students</th>
<th>Disabled students</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Male</td>
<td>276(39.9)</td>
<td>412(57.6)</td>
<td>688(48.9)</td>
</tr>
<tr>
<td>Female</td>
<td>416(60.1)</td>
<td>303(42.4)</td>
<td>719(51.1)</td>
</tr>
<tr>
<td>Academic area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanity</td>
<td>179(25.9)</td>
<td>167(23.4)</td>
<td>346(24.6)</td>
</tr>
<tr>
<td>Social sciences</td>
<td>328(47.4)</td>
<td>362(50.6)</td>
<td>690(49.0)</td>
</tr>
<tr>
<td>STEM</td>
<td>185(26.7)</td>
<td>186(26.0)</td>
<td>371(26.4)</td>
</tr>
<tr>
<td>Grades</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-year</td>
<td>156(22.5)</td>
<td>184(25.7)</td>
<td>340(24.2)</td>
</tr>
<tr>
<td>Second-year</td>
<td>199(28.8)</td>
<td>206(28.8)</td>
<td>405(28.8)</td>
</tr>
<tr>
<td>Third-year</td>
<td>197(28.5)</td>
<td>157(22.0)</td>
<td>354(25.2)</td>
</tr>
<tr>
<td>Fourth-year and above</td>
<td>140(20.2)</td>
<td>168(23.5)</td>
<td>308(21.9)</td>
</tr>
</tbody>
</table>

3.2. Instruments

College Students’ Psychological Adaptation Scale [12] was used to measure the psychological adaptation of college students in this study. The scale was developed based on the theory of psychosocial development by Erikson, and referred to the identity dimensions by Chickering along with Sternberg's triarchic theory of human intelligence. There were 108 five point Likert-type self-rating items (1 = strongly disagree to 5 = strongly agree) in this scale which would measure six indexes of adaptation. The college students with higher scores on this scale reflected a higher level of psychological adaptation. The definitions of the six indexes were displayed in Table 2.

Table 2. Indexes and the definitions

<table>
<thead>
<tr>
<th>Indexes of adaptation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving and decision making</td>
<td>Decision making and intelligence related to personal problem solving</td>
</tr>
<tr>
<td>Family and interpersonal relationship</td>
<td>Social adaptation and social competence</td>
</tr>
<tr>
<td>Self-confidence and competence</td>
<td>Sense of competence in learning, leading, and exercising</td>
</tr>
<tr>
<td>Leaning adaptation</td>
<td>adaptation to learning environment and usage of learning</td>
</tr>
<tr>
<td>Emotional adaptation</td>
<td>Emotional response to parent-child relationship, external expectations, and stress</td>
</tr>
<tr>
<td>Self-worth judgment</td>
<td>Degrees of self-worth</td>
</tr>
</tbody>
</table>

The coefficients of internal consistency of the six indexes were .38 to .71. The test–retest reliability of the scale ranged from .78 to .88.

3.3. Data analysis

The collected data were analyzed using IBM SPSS Statistics (21.0) after deleting the cases with missing data. The scores of six indexes were instead of a total score of psychological adaptation in this study. It was the reason that we used Multivariate Analysis of Variance (MANOVA) to compare groups’ differences on more than one dependent variable.

4. Results

The results of descriptive analysis for demographic groups were summarized in Table 3. The results of MANOVA for comparing the differences in psychological adaptation between college students with and without disabilities were displayed in sub-section 4.1. The differences in psychological adaptation for disabled students and for non-disabled students were explained separately in sub-section 4.2.

4.1. The differences in psychological adaptation between college students with and without disabilities

One-way MANOVA was conducted to find out the differences on the six indexes of psychological adaptation between the students with and without disabilities. The value of Pillai’s trace was .01, $F(6, 1290) = 2.79, p=.011$. There were significant differences on the psychological adaptation between the students with and without disabilities. The univariate test statistics was used to determine the indexes which were significantly different between the two groups. The significance ($α$) level was reduced from 5% to 0.8% to reduce the chance of making a Type I error. The results were summarized in Table 4. The values of $p$ in Table 4 indicated that there were significant differences between regular students and disabled students on all indexes of psychological adaptation except the index of Self-confidence and competence (SC).
Table 3. Means and deviations of six indexes of psychological adaptation for demographic groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Regular students (n=648)</th>
<th>Disabled students (n=649)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PS</td>
<td>IR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>66.64</td>
<td>67.93</td>
</tr>
<tr>
<td>SD</td>
<td>(10.43)</td>
<td>(10.39)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>66.90</td>
<td>66.33</td>
</tr>
<tr>
<td>SD</td>
<td>(10.76)</td>
<td>(10.44)</td>
</tr>
<tr>
<td>Female</td>
<td>66.47</td>
<td>68.94</td>
</tr>
<tr>
<td>SD</td>
<td>(10.23)</td>
<td>(10.24)</td>
</tr>
<tr>
<td>Academic area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>(n_HH=166; n_HS=306; n_SH=176)</td>
<td>(n_HH=166; n_HS=306; n_SH=176)</td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>67.23</td>
<td>68.16</td>
</tr>
<tr>
<td>SD</td>
<td>(10.84)</td>
<td>(9.55)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>65.48</td>
<td>66.77</td>
</tr>
<tr>
<td>SD</td>
<td>(10.73)</td>
<td>(10.79)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>68.09</td>
<td>69.76</td>
</tr>
<tr>
<td>SD</td>
<td>(9.28)</td>
<td>(10.21)</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 1</td>
<td>63.86</td>
<td>66.70</td>
</tr>
<tr>
<td>SD</td>
<td>(11.94)</td>
<td>(9.93)</td>
</tr>
<tr>
<td>Grade 2</td>
<td>66.92</td>
<td>67.91</td>
</tr>
<tr>
<td>SD</td>
<td>(9.86)</td>
<td>(10.86)</td>
</tr>
<tr>
<td>Grade 3</td>
<td>67.41</td>
<td>68.73</td>
</tr>
<tr>
<td>SD</td>
<td>(10.36)</td>
<td>(10.47)</td>
</tr>
</tbody>
</table>

Table 4. Summary of One-way MANOVA

<table>
<thead>
<tr>
<th>DV</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS</td>
<td>1</td>
<td>1051.36</td>
<td>1051.36</td>
<td>7.99</td>
<td>.005</td>
</tr>
<tr>
<td>IR</td>
<td>1</td>
<td>1091.85</td>
<td>1091.85</td>
<td>9.41</td>
<td>.002</td>
</tr>
<tr>
<td>SC</td>
<td>1</td>
<td>768.87</td>
<td>768.87</td>
<td>6.42</td>
<td>.011</td>
</tr>
<tr>
<td>EA</td>
<td>1</td>
<td>155051.95</td>
<td>119.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>1</td>
<td>1534.54</td>
<td>1534.54</td>
<td>10.60</td>
<td>.001</td>
</tr>
<tr>
<td>SJ</td>
<td>1</td>
<td>508.28</td>
<td>508.28</td>
<td>8.00</td>
<td>.005</td>
</tr>
</tbody>
</table>

Note: PS= Problem solving and decision making; IR= Family and interpersonal relationship; SC= Self-confidence and competence; LA= Learning adaptation; EA= Emotional adaptation; SJ= Self-worth judgment.

4.2. The differences in psychological adaptation for demographic groups of students with and without disabilities

MANOVA were also used to analyze the differences on six indexes of psychological adaptation by demographic groups for students with and without disabilities respectively.

For regular students, results indicated a significant multivariate effect of gender, Wilks's Lambda = .96, $F(6, 641) = 4.15$, $p<.001$, and academic area, Wilks's Lambda = .96, $F(12, 1280) = 2.42$, $p<.01$, but an insignificant multivariate effect of grade, Wilks's Lambda = .97, $F(18, 1807) = 1.09$, $p>.05$. Univariate analysis showed that female students’ scores of family and interpersonal relationship (IR) and leaning adaptation (LA) were significantly higher than male students’ respectively ($F_{16}(1, 646) = 9.87$, $p<.01$; $F_{16}(1, 646) = 5.76$, $p<.05$). The analysis also revealed the significant differences between the scores of students those majored in social sciences and majored in STEM on problem solving and decision making (PS), family and interpersonal relationship (IR), and emotional adaptation (EA) ($F_{16}(2, 645) = 3.89$, $p<.05$; $F_{16}(2, 645) = 4.71$, $p<.01$; $F_{16}(2, 645) = 3.10$, $p<.05$).

For students with disabilities, all of the multivariate tests for demographic variables were insignificant (Gender Wilks's Lambda = .98, $F(6, 641) = 1.81$, $p>.05$; Academic area Wilks's Lambda = .97, $F(12, 1282) = 1.69$, $p>.05$; Grade Wilks's Lambda = .97, $F(18, 1810.68) = 1.01$, $p>.05$).

5. Discussion

The current study was conducted to explore the psychological adaptation of college students through a five-point Likert-type self-rating scale. The psychological adaptation were expressed by six indexes of adaptations: problem solving and decision.
making, family and interpersonal relationships, self-confidence and competence, learning adaptation, emotional adaptation, and value judgment. The mean scores and standard deviations of six indexes of psychological adaptation for students with and without disabilities, and for demographic groups of regular students and disabled students were revealed in Table 3. All of the mean scores of demographic groups of regular students were higher than the scores of disabled students except the first-year disabled students’ mean scores on problem solving and decision making, and on family and interpersonal relationships. Moreover, all of the values of standard deviations for demographic groups of regular students were lower than the standard deviations of disabled students except the standard deviations on learning adaptation of female disabled students’, and the standard deviations on emotional adaptation of the disabled students majored in Social Science’ and the first-year disabled students. The results of MANOVA also confirmed that regular students contained better psychological adaptation than disabled students did, and the lower standard deviations indicated that variations of psychological adaptation of regular students were smaller.

The results of comparing the scores differences between students with and without disabilities would cover the shortage of Chen’s study designs that collected data only from college students with disabilities [11]. The results also indicated that the insignificant score differences between the students with and without disabilities on the index of self-confidence and competence. The definition of the “self-confidence and competence” is the sense of competence in learning, leading, and exercising. The mean scores of this index were the second lower score for students with and without disabilities. Did the result imply that college students with lower self-confidence and competence were a universal phenomenon? It should be examined in future research.

For the second purpose of this study, we used MANOVA to examine the differences of six indexes of psychological adaptation of regular students by demographic variables. The results indicated that the demographic variables, except grade, would make significantly differences on some indexes of psychological adaptation for students without disabilities. However, the finding were consist with part of findings by Clinciu’s that there was a better academic adjustment for female students, but those were inconsistent with previous findings that male students contained a better personal-emotional adjustment [4]. This study’s results were also part inconsistent with Wang and Zhang’s results [7] that the demographic variable, grade, would make insignificant multivariate effect in the current study. What are the relationship between psychological adaptation and demographic variables? Are the results specific to the unique culture of Taiwan, or are the results generalizable? These questions warrant further investigation.

The study also found that the demographic variables would make no effect on psychological adaptation of students with disabilities. However, the demographic variables in this study were focused on the students themselves. We didn’t explore the demographic variables about the students’ family resources, i.e., human capital, financial capital, and social capital. What are the critical variables about psychological adaptation for college students? Further examination is warranted.

Regarding the research design, the current study was a quantitative study. We used the Likert-type self-rating scale to measure the psychological adaptation for college students. Which might have neglected the important clues to clarify the psychological adaptation of college students with and without disabilities. Developing different kinds of instruments to identify the adaptation and needs of college students, or conducting more studies to explore college students’ life experiences might be considered in future research.

Finally, the purposes of understanding the psychological adaptation of college students are to help these students’ transition from adolescence to adulthood. So, enhancing psychological adaptation to college is an important mission of students especially for those with disabilities. The study indicated that the psychological adaptation of college students with disabilities were significantly lower than those students without disabilities’. Developing support programs to enable and empower disabled students in the college campus should be warranted.

6. Conclusions

The study indicates that regular college students contained better psychological adaptation than college students with disabilities did. The demographic variables, gender and academic area, would make significant differences on some indexes of psychological adaptation for students without disabilities. However, these demographic variables, gender, academic area, and grade, would make no effect on psychological adaptation of students with disabilities.

The results also indicate that there is a need for the future to explore the relationship between psychological adaptation and demographic variables and find out the critical variables about psychological adaptation for college student. Besides, conducting more studies to explore life experiences of college students with different areas of disabilities should be warranted. Finally, well-designed instruments to identify the needs of college disabled students and support programs to enable and
empower these students in the college campus should be developed in the future.

7. Acknowledgment

The study was supported by Ministry of Science and Technology, Republic of China (Taiwan) through the project no. NSC 102-2410-H-003-063.

The author also thanked the 1,448 students whom participated in the study and the assistances of 75 universities' resource room staffs. Finally, the author would like to thank Miss Ya-Chi Lei and Mr. Sie-Sin Li, the part time research assistants for their help on data collecting and coding.

8. References


The Effectiveness of Dialogic Reading in Enhancing Language Ability in Children with Language Delay

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Abstract

Early language skills are crucial for children’s success in their learning and social development. The first several years of young children are indeed an essential period for language learning in early development [1]. Many researches have indicated that children with early language delay are at risk of difficulties in various aspects such as social, behavioral, literacy and academic [3]. It is therefore crucial to identify effective strategies to facilitate language development for children with language delay. Dialogic reading is an evidence-based practice which provides language interactive context for normally developed or at-risk young children to learn and improve their language, using elaborative questioning techniques. Furthermore, it helps promoting children’s verbal participation and acquisition of new concepts through repeated reading [4]. Nonetheless, little researches are found to evaluate whether dialogic reading produces similar positive effects on language for young children with language impairments [2]. Hence, the purpose of this study was to examine the effectiveness of dialogic reading in enhancing language ability of children with language delay.

A single-case study design was employed in this research study. A 4-year-old child who is diagnosed with language delay was recruited by purposive sampling. The dialogic reading intervention of this study was consisted of 8 sessions. In each session, a picture book was read with the child using dialogic reading techniques, which were the use of five types of prompts named CROWD and the four scaffolding strategies named PEER. Four language skills were recorded and analyzed in each session including expressive syntactic ability, narrative skills, and receptive ability. Additionally, the receptive vocabulary ability of the target child was pre-tested and post-tested by applying a standardized Cantonese receptive vocabulary test.

Results revealed that the language delayed child showed significant improvement in the receptive vocabulary ability, expressive syntactic ability and narrative ability. For the receptive vocabulary ability, the accuracy rate increased from 68.6% to 80.2% from pre-test to post-test in the standardized Cantonese receptive vocabulary test. The expressive syntactic ability was assessed through measuring the mean length of utterance (MLU). There was a 27.4% increase in the MLU. Obvious increases in the use of complete and syntactically correct sentences were also demonstrated. For the narrative ability, the child was able to include significantly more story grammar elements during the interventions in the retelling tasks such as initiating event, action, and internal response. Furthermore, the child showed improvement in the comprehension of simple what questions and open-ended questions.

In general, findings of this research study suggest that dialogic reading intervention is an effective, practical and powerful intervention in enhancing the language ability of children with language delay. The overall results demonstrated that dialogic reading could facilitate the language skills in various aspects including receptive vocabulary ability, expressive syntactic ability, narrative ability and comprehension of questions. Since the dialogic reading techniques are uncomplicated to implement, the techniques should be considered...
by parents and educators. It is ideal for applying dialogic reading in naturalistic setting so as to enhance the language ability children with language delay.

References


The Contribution of Education through Art to the Inclusion of Pupils with Special Educational Needs - A Comparative Research on Inclusive Education -

Tereza Ventura
KIE, Knowledge, Innovation and Education Association, Portugal

Abstract

This study carried out a comparative, reflective and contextualized analysis of the results of four action-research projects dealing with pupils with diverse special educational needs. The starting question: “Can the activities of Artistic Expressions contribute to the improvement of self-esteem and to the inclusion of these pupils?”. Three of these projects implemented a structured setting of Artistic Expressions’ Activities and the 4th implemented the “classic” personalized educational support, strictly accompanying the scholar curricula. Different scholar context, different Special Education Teachers, the same orientation, identical procedures for data collection and analysis. A quasi-experimental design with a pre-test and a post-test. The results of analysis showed that the Artistic Expression had an essential role not only on the promotion of communicative, creative and socializing skills, but also on the promotion of self-esteem, self-confidence and self-concept. It was also essential for the inclusion of these children in school and in society.

1. Introduction

The impossibility of replication of the same educational experience in exactly the same conditions combined with the great diversity and richness of contexts in which these experiences take place in the world today, observed and reflected by a great diversity of researchers, are giving support to the rise and reinforcement of comparative research in education. In fact, if such diversity can and should be explored from a contextual perspective, by insisting on what each approach has of unique, it is also worth highlighting how the confrontation of perspectives and approaches, from a comparative point of view, is also a valuable contribution for collaborative construction knowledge.

The aim of this study was to carry out a comparative, reflective and contextualized analysis of the results of four action-research projects dealing with pupils with diverse special educational needs, with similarly compromised skills [1], [2], [3], [4], [6], [7]. The starting question: “Can the activities of Artistic Expressions contribute to the improvement of self-esteem and to the inclusion of pupils with these special educational needs?”.

In the major work on current trends, perspectives and methods in comparative research in education, published in 2010, under the direction of Bray, Adamson and Mason, it is assumed that the main contribution of a comparative approach to respond to the same kind of problems lies in the inventory and analysis of the causes, in comparing the differences between the systems where they are observed as well as in the critic confrontation of solutions considered, applied or evaluated in each context/system [5].

Referring in particular to the recent differentiating approaches they conclude that comparative education should be considered as a "multidisciplinary component of the education" sciences, which should examine comparatively the dynamics of the educational process, under different contexts, time and/or space, in order to obtain knowledge that would not be possible to achieve from the analysis of a single situation. (...) a knowledge that results from the interpellation, through comparison, of education in its multiple aspects, situated in different contexts, captured and analyzed using techniques and methodologies provided by other sciences when considered to be the most appropriate by comparative students.” And they add “it is of fundamental importance that the interpellation is based on the need to understand education and that the result of such comparison is a different knowledge from that produced by another science”. [5]

We assumed, as a starting point, that “creative experiences require the development of relationships and the refinement of personal discoveries, creativity is the function of the transactional relationship between the individual and the environment in which it is engaged” [2], [6].

In fact we believe that the more individuals develop their creative abilities the more they are able to be critical, reflective and able to accept the differences and to include them in their experiences, considering these attitudes indispensable for the development of the creative process.
And that greater diversity of individuals, working together, regardless their needs and abilities, guaranties a richer creative process and becomes, for all, an event of more integral personal training. “The most important art of the teacher is to awaken the motivation for creativity and for the knowledge” [3], [7].

The process of inclusion through creativity makes the teaching-learning process comprehensive to all pupils, giving everyone a greater magnitude to create” (...) not just with one or the other, but in all artistic areas, globally, in musical, dramatic, danced or verbal expression, in literary expression ... among others” [4], p.83.

The art not only facilitates the finding of the “Self” as a social being, but is also an excellent vehicle for knowledge, as it allows greater ease in acquiring knowledge: “(...) education through the arts, that follows from the meeting of modern pedagogy with the new artistic experiences, promote the humanistic education of the individuals, by the integration and harmony of experiences and acquisitions, facilitating the scholarship inclusive development, in a physical and mental balance (...)” [8], cit. in [1].

Pairis also presented [9] an Art Education Project that showed "how the creativity has enriched the under-achieving students with a new cultural identity." About this project she affirms “Our research justifies in addressing the issue in the current context of school improvement through education and creativity. This is also part of equal rights for all.” [9].

Her study concerned pupils’ activity operated from the theoretical and methodological framework of an action-research project. The analysis of pupils’ activity puts into perspective the impact of artistic and cultural practices on learning and the movement as means of expression and cultural fact, thereby offering extended access to identification of feelings and various types of pupil’s commitment during reading and writing activities and practice of visual arts, of getting to work and overcoming challenges through creativity [9].

Thus, in the view of the above referred authors, under a pedagogical perspective, every educational institution should promote the development of the creativity of his pupils, because all pupils are entitled to an education that promotes their scholar and educational success.

But they affirm, moreover, that it is essential for this to guaranty the access to artistic education, in order to facilitate the development of fundamental human capabilities, as the critical spirit, creativity itself, sensitivity, socialization, inclusion, and so on.

The study around self-concept was deepened from 1960, recognizing its importance to understand personality and human development.

A child who is afraid of failing is always trapped in its insecurity and anxiety, internally conditioned by the high expectations of society, often discrepant of its actual performances. The teacher can indeed contribute pervasively, according to these positive or negative performances, to the creation of the self-concept. In this context, it is important to note that several studies on the subject, prepared over the years, shown that students with SLD have a more negative image of their academic potential than the other students [2], [6].

Indeed it was found that "academic self-concept is more negative in older children and with lower levels of academic achievement, perhaps because they have more academic failure experience. (...) For a child who attaches too much importance to his academic success, an increased negative academic self-concept will negatively influence his overall self-concept. Thus, the personal value of this child will be determined by its school results.

In fact, these negative perceptions will influence the levels of educational achievement, in the sense that these children are less motivated, which will lead to reduced effort and persistence. A negative self-concept can have more influence on school failure, than the difficulties of intellectual origin. "[3], [7].

Therefore, it seems that “self-concept” is “a jewel” of inestimable value in education.

Much is said about the lack of motivation of students, their selfless posture regarding school, the glaring gap in relation to objectives and the consequent negative school performance. From a perspective where the student should "bring" the motivation to the teaching-learning process, for it to be carried out in a fruitful way, we moved to a vision in which the teacher and the student must work together, transforming learning into a motivational experience and of motivation as the driver to continuous learning. Therefore, this is a dynamic process that thrives on teacher-student reciprocity, which determines the will and perseverance in tasks aiming quality results and, mainly, pleasure and happiness in the process.

Pairis [9] focused great attention “on mediation in an experimental class of arts and cultural education developed as a tool for school mobilization.” Her study concerned pupils' activity operated from the theoretical and methodological framework of an action-research project. The analysis of pupils’ activity puts into perspective the impact of artistic and cultural practices on learning and the movement as means of expression and cultural fact [9], thereby offering extended access to identification of feelings and various types of pupil’s commitment during reading and writing activities and practice of visual arts, of getting to work and overcoming challenges through creativity [9].
The question then arises, towards school demotivation: what's missing? Can you motivate without motivation? Is student’s motivation going to be met by self-concept? To what extent are they related? What is the teacher’s role in the construction / rehabilitation of motivation and self-concept aiming to improve student’s performance?

To search for students’ motivation, that promotes their academic success, is an imperative of the school for all and for life.

The Universal Declaration on Cultural Diversity [10], assumes in Article 2: “In our increasingly diverse societies, it is essential to ensure harmonious interaction among people and groups with plural, varied and dynamic cultural identities as well as their willingness to live together. Policies for the inclusion and participation of all citizens are guarantees of social cohesion, the vitality of civil society and peace. Thus defined, cultural pluralism gives policy expression to the reality of cultural diversity. Not dissociable from a democratic framework, cultural pluralism is conducive to cultural exchange and to the flourishing of creative capacities that sustain public life”.

The Salamanca Statement [11] begins with a commitment to Education for All, recognizing the necessity and urgency of providing education for all children, young people and adults 'within the regular education system.' That is to say, those children, young people or adults with special educational needs 'must have access to regular schools. And the Statement adds: "Regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system".

We search for learning processes oriented to the reinforcement of inclusive schools that provide to all learners the flourishing of creative capacities that illuminate private life and sustain public life.

2. The Contextualized Case Studies

The aim of this study was to carry out a comparative, reflective and contextualized analysis of the results of four action-research projects dealing with pupils with diverse special educational needs [1], [2], [3], [4], [6], [7]. The starting question: “Can the activities of Artistic Expressions contribute to the improvement of self-esteem and to the inclusion of pupils with these special educational needs?”. Three of these projects implemented a structured setting of Artistic Expressions’ Activities and the 4th implemented the “classic” direct personalized educational support (90 minutes per week or less, with the presence of a Special Education Teacher near the pupil) to each pupil, strictly accompanying his scholar curricula.

The setting of the first action-research project - where 6 pupils, in Basic Education, with Autistic Spectrum Disorders (ASD), were accompanied - articulated two different contexts and had several phases of previously scheduled interventions. Within the first context - Structured Teaching Unit (STU) - the Studio of Plastic Expression, Personal and Social Development and the Music Workshop - and within the second context - the classrooms - in the disciplines of Education for Technology and Musical Education. [1]

In the Studio of Plastic Expression creative and playful use of arts enabled participation in the atelier of other pupils of the school, having as purpose the sharing of experience and knowledge, looking for the “opening” of the unit itself to the school community. Regular education students who were invited to participate in the activities carried out on STU, as part of this study, were assessed by the Director of Class in the discipline of Civics, for his performance in the context of the so-called "Project Sponsors", who sought to promote mutual assistance and exchange of knowledge/experiences between regular education students and students with autism spectrum disorders, on STU. Regular education students enthusiastically participated in this project.

The setting of the second action-research project - where a pupil in Basic Education, with Attention Deficit/Hyperactivity Disorder (ADHD) was accompanied – begun as an individual project but was expanded to a group one [2], [6].

In fact, the pupil with ADHD exhibited, at start interviews, great pleasure for guitars and a rejection of curricular disciplines as not interesting and boring. The answer was to propose he should construct several "creative guitars", related to the following subjects of the 3rd cycle of basic education: Portuguese, English, French, Spanish, Mathematics, Physics and Chemistry, Geography, Natural Sciences, Physical Education and Visual Education. The purpose of this intervention program was the improvement of pupil skills that were insufficiently developed: executive functions such as capacity for planning, self-monitoring, analysis and synthesis, organization and working memory; capacities of attention; self-control and behavioral regulation; regulation and emotional management.

It is noteworthy that the project aroused the curiosity of other pupils, who showed willingness to participate and helped in painting the guitars, that were exposed and admired by all the partners in the education community.

The setting of the third action-research project - where 12 pupils in Basic Education, with Specific Learning Disorder (SLD), were accompanied – was
an Arts’ Workshop called “Feeling Arts’ Workshop” [3], [7].

Here, different and motivating strategies were applied (reading of a theater play, interpretation of characters, design and construction of stick puppets and scenery for this theater play, to rehearse and present the play, both in the school and in a Theatre, to all the community, during the celebration of Children’s Day, to collaborate in the promotion of a thematic workshop "Monsters & Company" for the pupils of the 1st cycle - activity that was reported in the Blog of the group activities and to present the work of this group in the exhibition in school spaces).

The setting of the fourth action-research project - where 12 pupils in Basic Education, with Specific Learning Disorder (SLD), 3 in the 1st Cycle, 6 in the 2nd Cycle and 3 in 3th Cycle were accompanied – was the “classic” direct personalized educational support (90 minutes per week or less) to each student, strictly accompanying his scholar curricula [4].

The departure question was here “Can the activities of direct personalized educational support strictly accompanying his scholar curricula contribute to the improvement of self-esteem and to the inclusion of pupils with these disabilities?”

3. Methodology and procedures

The aim of this study, as referred above, was to carry out a comparative, reflective and contextualized analysis of the results of four action-research projects dealing with pupils with diverse special educational needs [1], [2], [6], [3], [7], [4]. The starting question: “Can the activities of Artistic Expressions contribute to the improvement of self-esteem and to the inclusion of pupils with these special educational needs?”.

Different scholar context, different Special Education Teachers responsible for the intervention-projects, the same orientation, articulated design of the projects.

In all cases a quasi-experimental study with a pre-test and a post-test was designed.

All work processes were grouped into three phases: analytical diagnosis (including the pre-test), intervention-action and reflection-evaluation (including the post-test).

The nature of the departure question determined the choice of mixed methods, qualitative and quantitative, having proceeded to the triangulation of the results obtained by both methods, allowing the interpretation of similarities and discrepancies.

From a qualitative point of view, we appealed to the documentary analysis, by setting the case studies of some specific pupils, including analysis of direct observation results and of semi-structured interviews. Direct observation aimed to analyze the spontaneous attitude of pupils, their expressed emotions, opinions and value judgments in front of the creation of art objects, motivating them to learn through Art. This observation has facilitated the self-regulation of teaching activity and has been properly registered at all moments. Some of that documentary information was used in subsequent empirical studies [1], [2], [3], [4],[6],[7]. Also contributed to the objectives of the investigation a qualitative recollection of data obtained through semi-structured interviews to a group of professionals with relevant knowledge for this study. The list of professionals to be contacted was conveniently defined by the researchers.

4. Data analysis’ results

The present work had two main objectives: to understand how creativity in the Visual Arts can contribute to the inclusion of a child with Special Educational Needs at school and review the appropriateness of strategies / methods used in the artistic education and verify if they contribute to the development and socialization of the child.

According to the results of interviews conducted with teachers, there was the strong conviction that the fine arts stimulate imagination and creativity, using strategies that are intrinsic to teaching-learning methods of the discipline, developing communication and expression, increasing the autonomy and promoting socialization of the pupils involved.

The parents of the pupils under study considered that through creativity in the teaching of fine arts and intrinsic methodologies in this area, learning can be facilitated, exposing the contents in a more interesting and playful way, a view shared with both teachers and parents of other pupils, without SEN, that also added to this list the development of social skills. According to the teachers the skills to be developed through the applied methodologies and creativity in the teaching of fine arts are not only social but also emotional and intellectual skills.

The parents of the pupils in study noticed that creativity arised as a facilitator of inclusion, of communication and socialization.

Through the activities observed in different contexts above (direct / participant observation) and taking into account the results obtained with the analysis of the answers to the interviews and reports of speech of both the teachers accompanying pupils on study and parents, it was found that they consider of great importance for the success, socialization and inclusion of the pupils with SEN, the way their needs were met with in the classroom.

In fact, they affirm the importance of the empathy between teacher and pupil, the adoption of a proactive attitude in the classroom by the teacher, the adequate planning of activities for the
group/class, with the exchange of experiences / partnership between teachers (regular education and special education) using intrinsic strategies to the disciplines of arts appropriate to each pupil, appreciating the strengths of ALL, generating an environment of respect, mutual and equal opportunities.

It was also affirmed that the use of strategies of the scope of the Visual Arts and creative/proactive attitude, of partnership between all the teachers, contributed to the development of communication and pupils expression, promoting mutual assistance, thus contributing to their socialization and inclusion.

The great importance of sharing information, experiences and strategies among all those involved in the teaching-learning process of the pupils (teachers and parents) was also pointed out.

It was found, through direct observation of the pupil with ASD [1] that he participated very well in activities in the field of plastic arts, demonstrating creativity in the way he communicated and expressed himself, how he resolved troubleshoots, chose and applied materials, showed motivated participation in the activities and learning, cooperated with colleagues (helped and was helped) and with the teachers. It was observed that the use of strategies in the context of the arts, promoting mutual aid and the positive interaction between the pupil and their peers and teachers, motivated him, increasing his self-esteem and developing his autonomy throughout this process, having facilitated his socialization and inclusion. It is consensual that it is essential to articulate the school with family, these being the main institutions "responsible" for the socialization of the child and the provision of a quality education for all.

It is noted that the work with Fine Arts, in the case of the pupil with ADHD aroused the curiosity of peers, who showed willingness to participate and helped in painting the guitars [2], [6].

It was found in the qualitative approach, according to data collected on direct observation, that this pupil, after the intervention, improved attention and concentration, behavior / attitudes, cognition, socialization and self-esteem.

In the third study, where 12 pupils in Basic Education, with Specific Learning Disorder (SLD), were accompanied - referred in [3], [7] the results of analysis of the data obtained through a questionnaire, an interview and direct observation, we came to the conclusion that the Artistic Expression played an essential role not only on the promotion of communicative, creative and socializing skills, but also on the promotion of self-esteem, self-confidence and self-concept. It was also essential for the inclusion of these children in school and in society.

The setting of the fourth action-research project [4] - where 12 pupils in Basic Education, with Specific Learning Disorder (SLD), 3 in the 1st Cycle, 6 in the 2nd Cycle and 3 in 3th Cycle were accompanied – was the “classic” direct personalized educational support (90 minutes per week or less) to each student, strictly accompanying his scholarly curricula.

The analysis results of the quantitative approach showed that the evolution of the average self-concept in the 1st cycle was significant (17%), although it started with the lowest percentage of the three cycles at the beginning of the year. On the other hand, the motivation for learning went down 8 percentage points, and started with the average (significantly) higher of the 3 cycles. In the 2nd cycle there was a residual improvement in self-concept (3%), matching the improvement on motivation (over 8%). The 3rd cycle decreased by 10% falling below the starting point of the 1st cycle in what self-concept is concerned. The motivation for learning had its starting point 28 percentage points below the 1st cycle, ending the year with the same difference, though with results below 50%. There was also an 8% decrease in motivation for learning.

The school performance (measured by the results of the 3 scholar periods) follows roughly the lines of motivation and self-concept. A special reference to the case of students of the 3rd cycle, in which the motivation and self-concept went exponentially down throughout the year, along with the school performance. None of the three students observed in this cycle has transited the year.

5. Discussion of results

It turns out that there are several authors who attest a positive relationship between creative activities / motivation to learning / socialization and inclusion, revealing that a more creative and proactive teaching relationship is of great importance to the success, socialization and inclusion in the school [8], [12], [13], [14], [15], [16], [17].

It was noted during the present study that the arts stimulate imagination and creativity using strategies and creative methods intrinsic to the discipline, developing communication and expression, increasing the autonomy and promoting socialization of the pupils with ASD, with ADHD and with SLD.

It was also found that through the creativity in the teaching of fine arts and applying intrinsic methodologies in this area, we can facilitate learning, exposing the contents in a more interesting and playful manner, promoting the development of social, emotional and intellectual skills of these pupils and promote their inclusion.

The sharing of information, experiences and strategies among all those involved in the teaching-learning process of these pupils, and between teachers and family was noted as of great importance.
It was found that the lack of stimulation of the pupil with ASD in the classroom led to detachment and fostered the indiscipline hindering his socialization and inclusion.

Considering the results obtained in a “classic” setting with pupils with SLD [4] it is evident that there is a decrease of motivation with the higher levels of education that is also correlated with a loss in positive self-concept. The accumulation of academic failures decreases motivation and discourages the dysorthographic students, as demonstrated in the analysis of qualitative information. This result is in agreement with several authors [18], [19], [20], [21], [22] and [23] who found that the retention of students showed a number of less suitable motivation beliefs for learning and school success.

6. Conclusions

The departure question of this comparative research study was “Can the activities of Artistic Expressions contribute to the improvement of self-esteem and to the inclusion of pupils with special educational needs (SEN)?”

Different schools, Basic Education, different Special Education Teachers responsible for the intervention, the same orientation and articulated design of the projects. In all cases a quasi-experimental study - with pre-test and post-test - was designed.

The overall results showed that in the “classic” setting there was a decrease of motivation with the higher levels of education that is also correlated with a loss in positive self-concept and self-esteem and the growth of school rejection. The settings that combine structured Creative Artistic Expressions’ Activities, oriented to pupils with SEN, that take advantage of their skills and increase their capabilities with the realization of these activities in regular context, enabling the recognition of their acquired “expertise” by their pairs and the community, had an essential role not only on the promotion of communicative, creative and socializing skills, but also on the promotion of self-esteem, self-concept and inclusion of these children in school and in society.

7. References


Session 26: Language, Reading and Writing Education

Title: The Impact of Dialectal Awareness on Children’s Spelling and Writing
(Author: Janice Belgrave)

Title: Importance of Mother Tongue in Education
(Authors: C. V. Sheeba)

Title: Studying the Effect of Project Based Learning on English Language Writing Skills: A Quasi-experiment in EFL classrooms in Karachi, Pakistan
(Authors: Rozina Somani, Meher Rizvi)
The Impact of Dialectal Awareness on Children’s Spelling and Writing

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Abstract

Based on doctoral research, this poster presents the findings of three separate studies carried out over a two-year period, into the impact of children's dialects of English (non-standard English), on their ability to acquire literacy skills, particularly spelling and writing in Standard or School English. Study One was a Pilot Study involving two female participants, to inform possible intervention strategies for the main study, Study Two.

Study Two, comprising four treatment groups, included a control intervention in which matched students were provided with typical teaching methods used in the classrooms of the schools where the studies were conducted. The other three groups received a Dialectal Awareness programme only, a Phonological Awareness programme only, or a combination of the two programmes.

Study Three replicated Study Two, with two treatment groups that were phonologically, age, gender and ethnically matched, to confirm the reliability of the results from Study Two. The groups received either the Phonological Awareness programme or the combination of the Phonological Awareness and Dialectal Awareness programme.

All three studies produced positive results with regard to improvements in the participants’ spelling and writing compared to normal classroom teaching. However, Study Three produced statistically significant improvements in writing for the participants who received the Phonological Awareness and Dialectal Awareness programme, thus providing a possible insight as to how children who speak dialects of English (Non-standard English) can be assisted to achieve to their potential in writing in Standard or School English.
Importance of Mother Tongue in Education

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Abstract

Mother-tongue is the language that a child learns in his mother's lap. It is the language which the child learns almost without any conscious effort on his part. Mother-tongue plays a tremendously useful and important role in the field of education of a child. Therefore, it must be given an important and prominent place in the curriculum. It is a language which the child acquires while living in his own social group. If our children are not educated in their mother tongue, thousands of years of thought processes might end abruptly. There are certain concepts, cultural constructs and even philosophical beliefs that can only be expressed in a child's mother tongue. There are important cultural and linguistic reasons for a person to a second language. The Sapir-Whorf principle holds that an individual's language has a profound impact on his cognitive processes. Basically, not only does thought affect language, but language affects thought. The importance of mother tongue lies in different aspects such as it is the source of Original Ideas, Instrument of Creative Self-Expression, Part of Emotional Development, Best Medium for Acquiring Knowledge etc. It brings about Intellectual Development, and it is also an Instrument of Growth of the Pupil, Formation of a Social Group, Medium of Expression and Communication. Thus, mother tongue has tremendous importance in education and in the curriculum.

1. Introduction

Language has a very powerful impact in the education of the individual. Our first language, the beautiful sounds one hears and gets familiar with even from mother’s womb, has such an important role in shaping our thoughts and emotions. Mother tongue provides the basis for learning another language Jim Cummins also underscores the importance of preserving mother tongue: “Children who come to school with a strong foundation in their mother tongue develop stronger literacy abilities in the language used at school. When parents or caregivers are able to spend time with their children and tell stories or discuss issues with them in a way that develops their mother tongue vocabulary and concepts, children come to school well prepared to learn the language of their immigrant country and succeed educationally.” Education is actually the intellectual, emotional, psychological and social development of a student. A child’s psychological and personality development will depend upon what has been conveyed through the mother tongue. A strong foundation in their first language will contribute to learning another language and help them develop stronger literacy skills in the school language, because children’s literacy knowledge and abilities transfer across languages from mother tongue to the language the child is learning at school. We can put the importance of mother tongue in four sphere of a person’s education

2. Intellectual development

Intellectual development for any person is impossible without a language. Reading, expressing oneself, acquisition of knowledge and reasoning are the instruments for bringing about intellectual development; and all of these are possible only through language and it is much better if it’s in the help of the mother-tongue of the child.

a. Easy to learn: of all the languages for a child it is mother tongue that is easy to learn. Intellectual formation in a foreign language is always difficult for the students. Full proficiency or mastery can be achieved easily in one’s own mother tongue.

b. Easy medium to acquire knowledge: The thinking and analysis of input is done in mother tongue. Without a language we cannot think. For input of knowledge into intellect, the best language is mother tongue.

c. Best Medium for Acquiring Knowledge: Thinking is an instrument of acquiring knowledge, training in the use of mother-tongue-the tongue in which a child thinks and dreams-becomes the first essential of schooling and the finest instrument of human culture." (P. B. Ballard.) The child will get familiarized with the nuances of a language, how to learn it and use it, and this will enable him or her to
learn other languages as well. When children continue to develop their abilities in two or more languages throughout their primary school years they gain a deeper understanding of language and gradually acquire knowledge about how it can be applied in different ways.

3. Emotional Development:

Mother-tongue is the most important instrument for bringing the emotional development of the individual. The emotional effect of literature and poetry is something which is of vital importance in the development and refinement of emotions. We can find this in the writing of great authors who have written in their own mother tongue.

a. Instrument of developing Self Confidence: The Children are able to express their feelings through mother tongue freely. The ability to converse in a language is developed through the mother tongue. They explore the similarities and differences between languages; and thus improve their self confidence. Unfortunately, for many bilingual children who have little mother tongue support at home, once they start school their mother tongue is gradually replaced by the dominantly used language, especially in the early school years.

b. Instrument of Creative Self-Expression: We may be able to communicate in any language, but creative self-expression is possible only in one’s own mother tongue. This is clear from the fact that all great writers could produce great literature only in their own language.

c. Instrument of Growth of the Pupils: The teaching of the mother tongue is important because on this depend the growth of our pupils. Growth in their intellectual life; growth in knowledge; growth in ability to express themselves; growth in creative and productive ability—all stem from the mother-tongue.

d. Source of Original Ideas: Original ideas are the product of one’s own mother tongue. On account of the facility of thought and expression, new and original ideas take birth and get shape only in one’s own mother tongue.

4. Social development

a. Formation of social group: if we notice we can find that most of the individuals form themselves into a social group under banner of mother tongue.

b. Close relation to parents: Parents are able to help the child in the matters of education if their medium is mother tongue.

c. Awareness of Values: The cultural values are attached through mother tongue. Every language is grown and matured in the culture. And every language has a cultural value. Hence by learning mother tongue, the culture also is imparted to the students.

d. Effective classroom interaction/participation: When the knowledge is imparted in the mother tongue the students tend to ask more questions and the class room becomes an interactive and participatory place of learning.

e. Become a Social being: It is through language, and especially through the mother-tongue, that individuals form themselves into a social being.

5. Psychological development

a. Communication: Mother tongue is the most powerful agent for communication. It is through the mother tongue one expresses one’s ideas and feelings most effectively.

b. Tolerance: Children feel comfortable when the education is imparted in mother tongue. Mother tongue is an indicator of cultural identity. A child connects to his parents, family, relatives, culture, history, identity and religion through his mother tongue. Native language links the child with the culture of the society that the child comes from and shapes his identity.

c. Intimacy: Children who are unaware of their culture, their language, and their history will lose the intimacy to themselves, to the family, to the society and to the nation to which they belong. Mother tongue is better for emotional and mental growth, as psychologists say, it matters tremendously that language expressions and vocabulary are chosen with care when we talk to children.

d. Confidence: A child will identify himself with the language and culture he knows best. For this reason, the attitudes and beliefs of immigrant parents are so important in this aspect. If they want to prevent this from happening they should find ways to help their children maintain and improve their mother language without neglecting to give affirmative messages and keeping positive attitudes about other cultures. We must not also forget that we live in a multicultural society.

e. Increasing self esteem: The mother tongue increases the self esteem of the students because they can interact freely. A lot of children from immigrant families, who don’t know their native language well, are at a crossroads of identity crisis. When a child doesn’t know his language well we cannot say that he will be nurtured with his culture properly for the fact that the relationship between language and culture is deeply rooted. Mother tongue is one of the most powerful tools used to preserve and convey culture and cultural ties.
6. Other advantages:

a. **Children are more likely to enroll and succeed in school**: If the language of instruction is the same as the child's mother tongue, there is a better chance for the child to 'fit in' and continue with education. (Kosonen, K. (2005). Education in local languages: Policy and practice in Southeast Asia Page on unesco.org)

b. **Parents are more likely to participate in their children’s learning**: Parents can actually make a difference in their child’s education if they can communicate with the teachers effectively and be able to help their children at home. (Benson, C. (2002). Real and potential benefits of bilingual programmes in developing countries. *International Journal of Bilingual Education and Bilingualism, 5* (6), 303-317.)

c. **Children tend to develop better thinking skills**: Keeping mother tongue in a foreign country does not happen spontaneously. Instead, it is an achievement that requires commitment and determination, especially from the family. Parents must establish a strong home language policy and make consistent efforts to help their children develop good literacy skills in their first language.

7. Some ideas about how parents can promote learning mother tongue:

a. The first step parents should take is to make children love their mother tongue by finding ways that motivate and encourage its learning. Leave second language to the outside world and speak to children only in your mother tongue at home. Listen to songs in mother tongue. Provide a reward system and make learning mother language competitive among children.

b. Devote time each day to reading and writing in mother tongue with children until they become able to read and write it independently.

c. Tell stories and discuss interesting topics such as your childhood. Children love to hear about their parents’ childhood experience home country celebrations, because this will develop both their oral and vocabulary skills.

d. Have books and multimedia for children in the home language. Watch TV series or favorite cartoons with them in the target language. Send children to centers that offer courses and other types of learning in your language and subscribe journals in home language.

h. Provide contexts where children can use home language such as visits to country of origin, organize picnics, cultural events, or celebrations with families from the same community.

i. Communicate your expectations about your home language to your child’s teachers. As professionals, they can encourage and support your child in keeping and developing their home language in many ways.

Every language spoken in the world represents a special culture, melody, color, and asset and to everyone the mother tongue is certainly one of the most precious treasures in our lives. It’s a duty and responsibility to preserve it and pass it down from generation to generation. Mother tongue has indeed tremendous importance in education and in the curriculum.
Studying the Effect of Project Based Learning on English Language Writing Skills: A Quasi-experiment in EFL classrooms in Karachi, Pakistan

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Abstract

In the current academic conditions in Pakistan, many students struggle in acquiring mastery over EFL as they receive minimal opportunity to practice language in the real world. A student centered instruction method is needed to be introduced that places students in contextualized, realistic, problem solving environment of language learning. Project based learning (PBL) is a growing concept globally, however, empirical research on PBL are scarce in English Language instruction methods and nearly nil in the context of Pakistan.

Adopting a quasi experiment design, the study explored effect of PBL on the writing skills of Grade 8 students in two private schools of Karachi focusing on narrative writing. PBL was introduced to the Intervention Group (n=28) while control group (n=19) was taught with the traditional method (TM) of teaching language. Scores on WAM-R during pre-test presented low and similar (p>0.05) ability of the entire sample (n=47). However, participants of IG showed significant improvement (p=0.00, r=0.5) inferring a prominent effect of PBL on their writing skills. Analysis at the lower cognitive domains revealed improvement in the performance of both the groups inferring both TM and PBL facilitated students. On the contrary, IG showed 70% improvement in higher cognitive domains demonstrating a clear edge over their CG counterparts (15% improvement). It is evident from the results that the IG was able to produce better results as it was provided with ample opportunities to recall, understand, and apply and even create a coherently written text using their rhetoric knowledge.

1. Introduction

Pakistan in general has witnessed an imperious spread of English in many spheres of life. Moreover, learning English as a foreign language is the ineffective teaching and learning environment [2]. Moreover, students do not get substantial opportunities outside of school to use their English language skills; and their struggle over attaining mastery remains evident in every grade a student is promoted to.

It is generally accepted that, writing is a strong form of communication needed for an individual to fully participate in society and even contribute to the economy [3]. In language classes, students may learn about the mechanics and strategies to write; however, it is equally important that students are aware when and how to apply their knowledge of language, specifically in writing.

PBL provides an efficient way of integrating the four skills (listening, reading, speaking and writing) of language, and there is not a fixed pattern or sequence that is followed in a project. Although a project usually starts from reading and listening skills, the final product is presented using speaking or writing skills [4]. Teaching and learning of EFL requires a strong instruction method that simplifies the process and provides opportunities to ‘learn by doing’. PBL is a powerful instruction method under the umbrella of student centered leaning that places students in contextualized, realistic, problem solving environment of language learning. The pedagogical shift can bring positive impact on a student’s future academic and career goals.

2. Defining PBL

Learning by doing can be explicitly achieved through PBL. Proponents of PBL say that when students investigate and seek solutions to problems, they acquire a deeper understanding of the key principles [5]. The essential design elements of PBL includes sustained inquiry, challenging problem, authenticity, student’s voice and choice, critique and revision, and a public product [6].

PBL was introduced in the discipline of second language learning about three decades ago.
Moreover, it was perceived as an opportunity for the language learners to recycle their language knowledge in the natural context [7]. PBL’s challenging investigation format does not keep a student to a lower level of cognition; it motivates a student to climb towards the higher cognition goals like analyzing, evaluating and even creating. PBL is a growing concept globally, however, empirical research on PBL are scarce in English Language instruction methods [7] and nearly nil in the context of Pakistan. The undertaken study aims to pronounce results in the context of Pakistan on the affectivity of PBL in English language learning by focusing on narrative writing skills.

3. Literature Review

Scrutinizing the traditional model of instruction, it is seen as, presenting a piece of information to the learner by a teacher and considering the activity of the learner as a vehicle for transmitting the information to the head of a learner. The transmission of knowledge infers that learning only occurs when information is processed by the learner in his head. On the contrary, constructivist view learning as situated within a context where the content of the information serves as a supporting role and learning occurs when the learner him/her self-constructs the knowledge in a specific context where he/she is situated [8].

To bring about a shift from the traditional model of instruction to the learner centered model of instruction that organizes learning around an individual rather than the subject-content, an effective instruction method is needed. The method that places students in the center of the learning, nominating them as in-charge of their own knowledge construction and allowing them to interact with the environment and peers, brings in the element of social learning; thus producing the understanding of the knowledge in their own unique way, leading towards self-awareness of learning and knowing [9]. The roots of Project Based Learning (PBL) meet with John Dewey’s philosophy of “learning by doing” and is also reflected in the theories of constructivism [9]. Within the framework of PBL, students are provided with opportunities to work on projects that are authentic, relevant to the real world; besides involving investigation, conversations and collaboration with peers. The process encourages students to construct their new knowledge by engaging in meaningful complex real life projects in social learning environment [6] [9] [10]. Furthermore, PBL captivates students’ interest and promotes students’ engagement by offering a diverse range of real life working projects that takes care of the students’ choices as well [10].

4. Quasi experiment design

Quasi Experiment (between-groups) design required intervention (IG) and control groups (CG) [11]. Two intact grade 8 classes of same school system located in the same locality were recruited as research groups. PBL (independent variable) of the study was introduced as an instructional pedagogy to IG to observe the effect on the writing skill (dependable variable) of the students. Whereas the CG was taught via traditional instruction method (TM) for teaching writing skills.

4.1 Sample Selection

Two intact Grade 8 classes from two private schools belonging to same school system were selected with Intervention Group (n=29) and Control Group (n=19). Baseline survey results were conducted to ensure participants of both the groups matched on all the social factors (age, background, gender ratio); moreover, past year’s academic results were also analyzed to ensure similar caliber of both the groups in language. Table 1 summarizes the demo demographic characteristics of Participants.

<table>
<thead>
<tr>
<th>Demographic Characteristics of Participants</th>
<th>Age Mean</th>
<th>Gender Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Female</td>
</tr>
<tr>
<td>CG (n=19)</td>
<td>13.84</td>
<td>7 (36%)</td>
</tr>
<tr>
<td>IG (n=28)</td>
<td>13.64</td>
<td>14 (50%)</td>
</tr>
<tr>
<td>Total (n=47)</td>
<td>13.72</td>
<td>21 (45%)</td>
</tr>
</tbody>
</table>

5. Data Collection Instrument: WAM-R

Writing Assessment Measure (WAM) was adapted [3] and modified (WAM-R) to be used as the data collection instrument. WAM is an analytical based scoring tool targeting the written expression domain, including ideas development, vocabulary, sentence structure and grammar, spelling, punctuation and handwriting. The modified version evaluated eight elements of writing and covered all the cognitive levels of Bloom’s Taxonomy, namely: knowledge, understanding, applying, analyzing, evaluating, and creating. The not so relevant measure such as handwriting was eliminated. Modifications in WAM-R are summarized in Table 2.

There are 12 elements of language that have been measured using WAM-R (see Appendix A) where each element of language corresponds to a cognitive level. WAM-R scores element of language on a scale of 1 to 4, with 4 being the highest. Each score was supported with a qualitative remark. Besides focusing on the vocabulary and sentence
structure and grammar (mechanics of writing), WAM-R also focuses on how a student formulates an idea by reading a prompt and subsequently develops that idea into a coherent text (rhetoric knowledge).

### Table 2. Modifications in WAM Tool

<table>
<thead>
<tr>
<th>Cognitive Level</th>
<th>Element in Language</th>
<th>Modification on WAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td>Hand writing</td>
<td>Eliminated</td>
</tr>
<tr>
<td>Remembering</td>
<td>Spelling</td>
<td>Retained</td>
</tr>
<tr>
<td>Understanding</td>
<td>Punctuations</td>
<td>Retained</td>
</tr>
<tr>
<td>Comprehension</td>
<td></td>
<td>Created</td>
</tr>
<tr>
<td>Applying</td>
<td>Sentence Structure and Grammar</td>
<td>Retained</td>
</tr>
<tr>
<td></td>
<td>Vocabulary</td>
<td>Retained</td>
</tr>
<tr>
<td>Analysing</td>
<td>Overall Structure and Organisation</td>
<td>Retained</td>
</tr>
<tr>
<td>Evaluating</td>
<td>Evaluating/ Critical Thinking</td>
<td>Created</td>
</tr>
<tr>
<td>Creating</td>
<td>Ideas</td>
<td>Retained</td>
</tr>
</tbody>
</table>

5.1. Reliability measure of WAM-R

A high reliability value of 0.934 was found for 8 items on WAM-R. The reliability signifies that the WAM-R constructs correlate highly with each other and it can measure a single underlying dimension.

6. Data Collection Methods

A Pre-test was conducted with IG and CG participants, where students were asked to respond to any one of the prompts as mentioned in Appendix A. Students writings were evaluated by the researcher and a co-evaluator on WAM-R and scores were inserted in SPSS.

**Intervention phase** was the actual time to manipulate the independent variable (Instruction method) in both the groups. To conduct a controlled experiment, simultaneous teaching at both the groups was opted. The content of the lesson in each class was the same; following bench marks of English Writing competency adopted from National Curriculum of Pakistan [12] but the method of delivery was obviously different. In the control group, usually text books were used to read and understand the content, there were rarely any group activities Intervention Group was made engaged with the project through out.

The Project. The intervention group was made into six groups from the first session and were informed about development of the project at the end of the month. Their project was to “develop story books for Grade 5 students in their own school”. The sessions progressed by providing facilitation to the students on different content areas of writing, integrating these with the PBL requirements. Additionally, students were made custodians of their own work by asking them to maintain the progress file of their group work. Students placed their brainstormed ideas, class work sheets, and the drafts of their stories in that file.

**Post-test.** Upon completing eight hours of instruction in both the groups, spread over a period of four weeks, post-test was scheduled which would eventually assist in determining the effect of the change in the instruction method. Post-test was administered in the same way it was done in pre-test. Post-test included prompts of similar difficulty as it was in the pre-test, and students were asked to pick any of the one prompts and write their response. Subsequently, the students’ responses were evaluated by me and my co-evaluator independently. After reaching on mutually agreed scores, these were entered in SPSS.

7. Method Limitations

The study aimed at revealing the effectiveness of Project Based Learning on the writing skills. However, it focused on only one kind of writing, i.e. narrative. Although, elements of writing could be found similar in other styles of writing such as expository and descriptive but were not technically covered during the intervention. Controlling extraneous factors such as students’ motivation, personal inclination towards reading and writing, and parental support offered in writing was beyond the researcher’s realm. Intervention for a longer period of time (say for a term) would have generated more real insights on PBL as an effective instruction method, mainly because of the time available to review students’ drafts and provide feedback.

8. Analysis

Descriptive analysis was conducted using measure of central tendencies (mean and medium), measure of dispersal (standard deviations), frequency charts and distribution tables. The information was further used to compare overall pre and post-test of IG and CG and also within the cognitive levels. Inferential analysis was applied in order to understand the effect of the intervention and observe the effect across various cognitive levels.

Results of Kolmogorov-Smirnov (K-S) test for control group [D (19) = 0.23, p<0.05] and intervention group [D (28) = 0.13, p<0.05], declared data as non-normal. Therefore, the difference of instruction method on the writing skills of grade 8 students was measured through Mann-Whitney (U)
test. All effects will be reported at 0.05 level of significance.

8.1. Overall comparison of pre-test scores

Descriptively analyzing pre-test scores of IG and CG, it was found that IG (M = 11.07, SD = 4.064) performed better than CG (M = 9.79, SD = 2.820) with statistically insignificant difference (U = 225.500, z = -0.928 p > 0.05). It was also found that 8 is the most reoccurring score in both IG and CG. The highest scores were found to be 23 and 17 in IG and CG respectively. On average, the score on the pre-test was found to be 10.55 (SD = 3.634). Here, high values of standard deviation values signified pre-scores values as being disperse. Sixty five percent of the students have scores below ten points on WAM-R inferring that both the groups possessed very low and basic competencies of narrative writing skills.

8.2. Overall comparison of post-test scores

Once the intervention phase was completed, it was important to conduct a post-test that could establish the effect of PBL as an intervention on the writing skills of the students. Post-test showed improvement in overall scores for both groups depicting that both PBL and TM have made an effect on the narrative writing skills of the students. However, it is important to note that the students of IG have showed noticeable progress (M = 18.07, SD = 6.104) on the post-test as compared to their CG counterparts (M = 11.95, SD = 5.437) with a statistically significant difference (U= 105.000, z= -3.507 p = 0.00). Additionally, the participants of CG have raised their maximum score from 17 to 29 however IG has raised their maximum score from 23 to 31. Figure 1 illustrates the difference of scores in pre and post-test revealing the significant effect of PBL on narrative writing skills of the IG participants.

8.3. Performance on Lower Cognitive Domains (LCDs)

LCDs include knowledge, understanding, and applying thus covering the five elements of language namely spelling, punctuation, comprehension, vocabulary, and Grammar. Summing up both groups’ performance on a lower cognitive level, it is evident that IG and CG maintained a similar performance in the pre-test, where the difference was not statistically significant (U=222.500, z= -1.039, p > 0.05). However, both IG and CG demonstrated improvement in the LCDs in the post-test inferring that both TM and PBL method facilitated the progress. It was also seen that the performance of IG participants on LCDs improved prominently and was statistically significant through PBL (U = 110.500, z = -3.398, p = 0.001) with a medium effect size of 0.49 ~ 0.5. PBL facilitated LCDs to a greater extent where IG was able to show 61% improvement. Figure 2 illustrates the difference in mean scores at each cognitive domain of IG before and after the intervention. On the other hand, participants of CG have shown only 28% improvement on LCDs signifying TM also somewhat facilitated improvement on lower cognition (see Figure 3)

Figure 1. Overall performance of IG and CG in pre and post test

Figure 2. Performance of IG on LCDs

Figure 3. Performance of CG on LCDs
8.4. Performance on Higher Cognitive Domains (HCDs)

Language elements in the HCDs include Organization and overall structure (Analyzing), Examining/Appraising/ critical thinking (Evaluating) and Ideas (Creating).

Both pre-test results on HCDs have shown similar performance of CG and IG which are statistically insignificant as well (U = 240.500, z = -0.09, p > 0.05). It is evident from the post test results that PBL as significantly affected the HCDs (U = 117.000, z = -3.288, p= 0.001) with a medium effect size of 0.47. On the whole, PBL as an instruction method facilitated more in higher order thinking domains in comparison to the lower order thinking domains. It was also revealed that lower order thinking was improved even in the traditional teaching instruction, where CG showed progress in remembering, understanding and applying. However, seeing the progress of IG in HCD implies that PBL is more effective for HCDs along with the LCDs.

Project based learning involves some amount of direct teaching as conducted in the traditional method. The process aims to provide sufficient background information about a topic or area. The extended part of the teaching (leading towards scaffolding) comes where students are asked to actually apply the knowledge in order to develop an artifact of their own choice. This is the stage that brings a difference in the learning graph of students, and where they receive an opportunity to reach higher levels of cognition.

![Figure 4. Performance of IG on HCD](Image)

Figure 4 illustrates the significant effect of PBL on the HCDs of IG participants, accounting for 70% improvement. The results infer that working on an end product of their own choice pitched at a real audience challenges them to use their critical and problem solving skills along with analyzing and evaluating each step to create a unique project. The chosen project provides confidence to the students to challenge ideas and not to accept everything on its own. On the other hand, traditional teaching method brought only 15% improvement in CG participants on HCDs inferring lack of opportunities for the participants to recycle knowledge and skills of language in any form (See Figure 5).

![Figure 5. Performance of CG on HCDs](Image)

Figure 5. Performance of CG on HCDs

According to the findings, the overall performance of students taught by PBL (M = 18.07, SD = 6.104) was better in English language writing skills, focusing on narrative writing, as compared to those students who were taught by TM (M = 11.95, SD = 5.437) with U= 105.000, z= -3.507 p = 0.00 with the medium effect size of 0.5. Moreover, PBL has effected all the cognitive domains as evident in the post test results benefiting understating in the LCD and, analyzing and critical thinking (evaluating) in the HCD the most.

Pre-test scores revealed the IG mean scores (28%) were marginally higher than the CG (24%) but were not significantly different (p>0.05). The mean scores depicted that both groups were holding similar competencies and skills in terms of narrative writing. Both groups improved their mean scores on WAM-R (CG=30%, IG=45%) in the post test revealing, that the respective instruction method has facilitated in improving narrative writing skills. Figure 6 illustrates the overall progress of students on WAM-R. On the other hand, it is noteworthy to observe that PBL brought 65% improvement in the overall scores of IG while TM brought only 22% improvement. Moreover, the difference in the scores of IG and CG were statistically significant (p<0.05).

![Figure 6. Difference in performance form pre to post-test](Image)

Figure 6. Difference in performance form pre to post-test

The analysis directs towards the routine practice of schools in the context of Pakistan that keep writing related exercises of EFL, reserved till the end.
of the academic year. Even though students receive a lot of exposure on various elements of language such as punctuation, verb tenses, kinds of sentences, use of articles, active/passive voice, etc., they do not receive sufficient time to apply all the language mechanics in the form of their own writings during the academic year. It is evident from the results that the Intervention group was able to produce better results as it was provided with ample opportunities to recall, understand, and apply (even create) various language concepts in their writings. Moreover, working in groups encouraged social learning (less focused in traditional method) where students worked as peers, helped each other in providing feedback, and improving their own work alongside.

9. Discussion

PBL is beyond simple incorporation of Projects [15]. Therefore, diligently incorporating all the elements of PBL in the classroom makes it a productive instruction method. Besides working on a challenging question that involves students’ voices and choices; authenticity of the project was one of the core reason for success of the intervention. Authenticity in classroom enables students to stay motivated on, ensure deeper engagement in the task and show visible improvement in learning [6]. The authentic nature of the task pushed students to apply their lower level cognition, utilizing their previous knowledge and language. Alongside, receiving opportunities to gradually move towards the higher cognition levels. It was an exciting idea for students to work as story writers knowing that their stories will be read by the people they know (grade 5 students of their own school). The authenticity of the project encouraged them to utilize their critical skills in identifying the reading interests of their target audience.

The journey of cognitive apprenticeship begins when a teacher enacts scaffolding Instruction. Scaffolding instruction become one of the reasons for the participants of IG to utilize their teacher’s consistent motivation, support, and feedback in exploring their imagination, associating rationale, and arguing constructively with peers thus, climbing more levels of higher cognition.

All and all, to lead towards the path of progressive education (much needed for the educational system in Pakistan), the current pace of knowledge demands to think beyond correct and straight answers. Students must be encouraged to inquire and bring out their creativity in looking for possible answers. This is only possible when the belief system of potential PBL teachers of Pakistan’s educational system is aligned with the ideology of PBL.

Undertaken study was a small scale experiment that explored the effect of project based learning on the writing skills. However, it is wider understood in the academia [9] [13] [14] that PBL is not limited to language instruction and can be initiated as an interdisciplinary instruction method where projects combine two or more subject domains.

10. Conclusion

The study generated profound evidences of Project Based Learning being an effective method of instruction in improving narrative writing skills of Grade 8 students based in the private school setup in Karachi. It is the high time for the educationalists in Pakistan to endorse innovative and non-traditional instructions methods like PBL; that can strengthen our teaching and learning aims, motivate students to gain expertise in the EFL and ensure attaining successful personal and professional growth for our youth. PBL is now attaining popularity because of the benefits it offers. However, it must not be treated like a bandwagon that every school jumps in without clear guidance and adequate preparation.

11. References


Appendix A: WAM-R

Pre and post-test prompts
1. Suppose you woke up one morning and had magical powers for a day. Write a story about the day you had magic powers.
2. Retell a fairy tale by making your own created changes in its main plot and twist.
3. At an awards assembly you were surprised to hear your name called for a certain award. Afterward, when your teacher asked you to write in your journal, you decide to write about this experience.
4. If you could become any animal, what animal would you choose to be? Why?
Session 27:  Session in French

Title: Proposition d’une méthodologie de recherche sur les apprentissages multiniveaux dans un cadre organisationnel
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Title: L’effet des pratiques enseignantes effectives sur l’intérêt des élèves sénégalais du cycle moyen pour les sciences et la technologie (S&T)
(Authors: Ousmane Sy, Patrice Potvin)

Title: La Pédagogie du Genre (Les Mathématiques)
(Authors: Léocadie H. Damienne Kossou, Aimé B. Avolonto)
 Proposition d’une méthodologie de recherche sur les apprentissages multiniveaux dans un cadre organisationnel

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Abstract

Cet article propose une méthodologie de recherche exploratoire visant à appréhender la relation entre d’identifier les différences interindividuelles de rapport au savoir et les pratiques collectives d’apprentissage respectivement sous les formes de l’apprenance et d’un système de mémoire transactive. L’innovation méthodologique proposée dans cet article repose dans l’utilisation de la méthode structurale permettant d’accéder directement aux interactions entre les acteurs et ainsi de travailler un concept collectif sur une mesure de même niveau que son fondement théorique.

1. Introduction

Nous assistons actuellement à une profonde mutation de l’Homme : son rapport au savoir et sa manière d’apprendre [1]. Afin de continuer à vivre en adéquation avec une société où l’accélération du progrès social et technologique déconcerte les individus, ceux-ci doivent perpétuellement s’adapter. Aujourd’hui, l’individu qui ne sait ou ne peut pas apprendre est handicapé ; ou comme le disait Toffler [2, p. 162], « les illétrés du XXIe siècle ne seront pas ceux qui ne savent pas lire ou écrire, mais ceux qui seront incapables d’apprendre, de désapprendre et de réapprendre. » En effet, à l’heure où la politique, l’économie ou encore les technologies s’influencent mutuellement et transforment les pratiques d’apprentissage des citoyens « au quotidien » [3], Carré va jusqu’à soutenir que « si dans les modèles précédents, c’était le caractère pédagogique de l’action de la société ou de l’entreprise sur les salariés et les citoyens qui était mis en avant, c’est aujourd’hui le rôle premier de l’apprentissage par les sujets sociaux qui est affirmé » [4, p. 5]. Chaque individu va ainsi devoir progressivement devenir plus responsable de la mise à jour de ses compétences et connaissances de manière privée comme professionnelle. C’est pourquoi nous avançons l’idée qu’une personne ayant une disposition favorable envers l’acte d’apprendre dans toutes ces situations différentes sera plus en phase avec son environnement et pourra y évoluer en dépensant moins d’énergie qu’une autre qui ne l’aurait pas.


2. Cadre et Hypothèses


2.1. Rapport au savoir

Le rapport au savoir se compose d’une grande famille de travaux [12] à laquelle la notion d’apprenance appartient désormais [13]. En tant
qu’ensemble stable de dispositions affectives, cognitives et conatives, favorables à l’acte d’apprendre, dans toutes les situations formelles ou informelles, de façon expérimentale ou didactique, autodirigée ou non, intentionnelle ou fortuite [9], elle permet de souligner la proactivité individuelle à apprendre. Ainsi, dans une situation donnée, chaque individu possèdera un niveau d’apprenance différent de celui d’un autre. À un haut niveau, elle peut même être perçue comme une expertise d’apprentissage, car comme le souligne Giordan [14, p. 163], « toute la difficulté est de passer d’un fonctionnement automatique, mais local, adapté aux quelques situations que l’apprenant a l’habitude de traiter, à une mobilisation plus large de procédures de pensée intégrées dans des stratégies gérées consciemment ».

Approchée et mesurée comme une attitude, elle se classe alors dans le champ de la psychologie sociale qui explore le lien qu’entretient l’individu avec le collectif. Enfin, en tant que rapport au savoir, elle interroge le rapport aux autres [13], comme évoqué précédemment par Carré. Il s’agit donc d’une sédimentation d’expériences d’apprentissage interactionnistes. Ainsi de par sa nature intrinsèque et sa conceptualisation académique, l’apprenance porte en elle une dynamique sociale.

2.2. Processus collectifs d’apprentissage

La littérature sur les processus collectifs d’apprentissage regroupe depuis près de 40 ans un nombre important de concepts différents [15]. Celui de mémoire transactive a été introduit pour la première fois par Wegner [16] pour tenter de comprendre comment les couples se coordonnent pour résoudre un problème. Il avait noté que les couples amenés à réaliser une tâche en commun se servaient de leurs partenaires comme des mémoires externes ayant appris précisément quelles étaient les expertises de chacun dans des domaines spécifiques. La mémoire transactive a été définie comme un système partagé permettant « d’encoder, de stocker, de récupérer de manière sélective les informations nécessaires à la réalisation d’un travail commun » [17, p. 923]. Différentes mémoires transactives (MT), propres à différents individus, peuvent être rassemblées en un système de mémoire transactive (SMT) au travers des interactions comunicationnelles entre les membres d’un groupe. Le SMT est présenté comme une forme de cognition collective dans la mesure où les membres d’une équipe ont conscience de la localisation des expertises de chacun et sont d’accord entre eux quant à l’exactitude de cette localisation [8]. La plus grande partie des études sur la MT ont opté pour une définition en trois composantes que nous adoptons à notre tour : spécialisation (degré de différenciation existant entre les connaissances des membres d’un groupe), coordination tacite (capacité de l’équipe à coopérer pour travailler efficacement) et crédibilité (degré de confiance accordée par les membres d’un groupe aux expertises de leurs partenaires).

2.3. Hypothèses

L’apprenance peut être rapprochée de la notion de mémoire transactive. Nous proposons qu’un haut niveau d’apprenance contribue à la constitution de la mémoire transactive et que les individus avec un haut niveau d’apprenance :

- H1 : ont une meilleure vision de la distribution des expertises au sein de leur organisation (spécialisation). Ils s’en servent comme ressources d’apprentissage.
- H2 : sont reconnus dans leur organisation pour leur expertise (crédibilité). L’apprenance est socialement perceptible et constitue un capital social par le biais de la confiance.
- H3 : mettent en place des processus d’échange de connaissances plus efficaces et plus étendus, à l’intérieur et au-delà de leur équipe (coordination tacite).

3. Méthodologie


L’apprenance, utilisée comme attribut des acteurs du réseau, sera mesurée par une échelle psychométrique dont la construction suit le paradigme de Churchill [23]. Le questionnaire (actuellement en phase de développement, voir annexe 5.1) interroge les trois dimensions attitudinales de l’apprenance. La mémoire transactive sera mesurée par trois questionnaires sociométriques de réseau complet dont les consignes sont basées sur les items de l’échelle de mesure du système de mémoire transactive (voir annexe 5.2) traduite par Michinov.
8. Je me sens capable d’apprendre par moi-même. (DIR)
9. J’ai tendance à organiser tout seul mes apprentissages. (DIR)
10. Quand j’apprends, je souffre. (AFF, inversé)
11. Si je veux apprendre quelque chose, j’y arrive toujours. (VOL)
12. Selon moi, il est possible d’apprendre par soi-même, sans formateur. (DIR)
13. Il faut apprendre tous les jours pour bien vivre. (TLV)
14. Apprendre m’ennuie. (AFF, inversé)
15. J’ai tendance à abandonner si je rencontre des difficultés pour apprendre. (VOL, inversé)
16. C’est important d’apprendre tout au long de la vie. (TLV)

Légende : AFF : Affectif ; VOL : Volition ; DIR : Autodirection ; TLV : Apprentissage tout au long de la vie.

4.1 Échelle de mesure du système de mémoire transactive

Cette échelle de Michinov [24] est une traduction, validation et adaptation de celle de Lewis [25].

Consigne : pour les questions suivantes concernant le déroulement du travail dans votre groupe, indiquez votre degré d’accord pour chaque proposition en cochant la case qui correspond le mieux à votre opinion. Pour cela, vous disposez d’une échelle de ce type : 1 – Fortement en désaccord, 2 – En désaccord, 3 – Neutre, 4 – En accord, 5 – Fortement en accord.

1. Chaque membre du groupe détenait une connaissance spécifique concernant un des aspects du travail à réaliser. (S)
2. J’acceptais volontiers les suggestions des autres membres du groupe sur la manière de procéder. (CR)
3. Je n’accordais pas beaucoup de crédit à la compétence des autres membres du groupe. (CR, inversé)
4. Les connaissances spécifiques de chacun des membres du groupe étaient nécessaires pour réaliser entièrement le travail. (S)
5. Nous avons réalisé notre travail tranquillement et efficacement. (CO)
6. J’avais une connaissance sur un des aspects qu’aucun des membres du groupe ne possédait. (S)
7. Je faisais confiance aux connaissances qu’avaient les autres membres du groupe à propos du sujet. (CR)
8. Les différents membres du groupe avaient une compétence dans des domaines différents. (S)
9. Lorsque d’autres membres du groupe apportaient des informations, je m’efforçais de les vérifier par moi-même. (CR, inversé)
10. Je pouvais compter en toute confiance sur les informations que les autres membres du groupe apportaient dans les échanges. (CR)
11. Il y avait très peu d’incompréhension sur ce que devait faire notre groupe. (CO)
12. Notre groupe avait souvent besoin de revenir en arrière et de recommencer. (CO, inversé)
13. Je connaissais quelle était la compétence de chaque membre du groupe dans des domaines spécifiques. (S)
14. Notre groupe travaillait ensemble de façon parfaitement coordonnée. (CO)
15. Il y avait beaucoup de confusion sur la manière d’accomplir le travail. (CO, inversé)

Légende : CO : coordination ; CR : crédibilité ; S : spécialisation.

5. Conclusions

Nous proposons ainsi une recherche exploratoire visant à appréhender la relation qu’entretiennent les différences interindividuelles de rapport au savoir et les pratiques collectives d’apprentissage respectivement sous les formes de l’apprenance et d’un système de mémoire transactive. Nous souhaitons démontrer avec cette recherche que les personnes avec un haut niveau d’apprenance ont une meilleure vision de la distribution des expertises, sont plus reconnus et mettent en place des processus d’échange de connaissances plus efficaces et plus étendus dans leur organisation. Pour ce faire, nous proposons une innovation méthodologique qui repose sur l’utilisation de la méthode structurale permettant d’accéder directement aux interactions entre les acteurs et ainsi de travailler la mesure du concept de mémoire transactive au même niveau que son fondement théorique, c’est-à-dire collectif.

6. Références


L’effet des pratiques enseignantes effectives sur l’intérêt des élèves sénégalais du cycle moyen pour les sciences et la technologie (S&T)

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Abstract

Plusieurs recherches [7] montrent que les élèves manifestent un intérêt de plus en plus faible pour les sciences et la technologie (S&T). Ce même phénomène est relevé par les autorités éducatives sénégalaises à travers différents rapports [3]. Conscientes de l’importance de l’enseignement des S&T pour la stratégie de développement socio-économique, les autorités éducatives ont généré le projet des Blocs scientifiques et technologiques (BST) pour faire face à la raréfaction des moyens affectés aux établissements d’enseignement du cycle moyen et au manque d’intérêt manifesté par les élèves à l’égard des disciplines scientifiques dénoncé dans les rapports du Ministère. Ce projet a donné satisfaction dans sa phase expérimentale en ce qui concerne l’amélioration des conditions d’enseignement des S&T au cycle moyen. Un des objectifs de ce projet est de tourner l’enseignement des S&T vers la pratique expérimentale. À la suite de tous ces efforts, nous souhaitons d’abord établir, par le biais de cette recherche, le portrait de l’intérêt des élèves sénégalais des BST à l’égard des S&T afin d’ensuite aborder la question de l’effet des pratiques enseignantes effectives qu’on retrouve dans les BST sur l’intérêt situationnel des élèves et sur leur performance en S&T. Par une approche méthodologique mixte, cette recherche procédera à une analyse quantitative des réponses fournies de 600 élèves par le biais de questionnaires d’intérêt individuel puis, à une analyse qualitative de l’enregistrement de séquences d’enseignement, qui sera mise en correspondance avec les données issues de questionnaires d’intérêt situationnel. Le traitement des données quantitatives envisagé reposera essentiellement sur des analyses descriptives (pourcentages, moyennes et écarts-types) pour obtenir un aperçu général sur les réponses à chacun des items des questionnaires de l’intérêt individuel et situationnel. Il est ensuite envisagé d’utiliser des tests d’hypothèses (test-t) afin d’analyser les réponses en fonction du genre, des analyses de régression pour les variations en fonction du niveau scolaire et des corrélations établies entre l’intérêt manifesté et la mise en œuvre des composantes des pratiques enseignantes. L’analyse des données qualitatives fera appel au modèle EPR de Vinatier [10] qui s’appuie sur l’analyse de la mise en tension des enjeux épistémiques, pragmatiques et relationnels lors des interactions verbales entre l’enseignant et les élèves. Nous espérons, par le biais des résultats de cette recherche (qui ne sont pas encore disponibles) d’avoir une idée plus précise du niveau d’intérêt des élèves des BST pour les S&T et des aspects des pratiques qui suscitent le mieux l’intérêt des élèves.

Références


La Pédagogie du Genre (Les Mathématiques)

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Abstracts


1. Introduction

La conférence Mondiale sur l’Education pour Tous tenue a Jomtien Thailande en 1990 spécifiait que l’Education pour Tous signifiait éduquer à la fois filles et garçons et traiter les deux sexes également. Le processus de réduction de l’écart entre deux sexes est un problème de justice et égalité. Jomtien a marque le début d’un support international intense pour assurer l’égal accès des filles à l’éducation. Ceci a été confirmé a la conférence Mondiale de l’éducation tous a Dakar 10 ans plus tard et constituent les objectifs de développement du Millenium 2000. Traditionnellement, toutes les sociétés ont privilégié les hommes par rapport aux femmes en ce qui concerne les possibilités d’éducation, et les disparités dans les niveaux de scolarité et d’alphabétisation reflètent aujourd’hui des modèles qui ont été façonnés par les politiques et les pratiques sociales et éducatives des passé. En conséquence, pratiquement tous les pays font face à des disparités entre les sexes.

“Qui s’éduque s’enrichit” est une autre manière de dire, que lorsque quelqu’un investit dans l’éducation, la personne a une meilleure vie dans le futur. Est-ce que cet adage est d’actualité encore aujourd’hui ? Près de 16 millions de filles d’environ 6 à 11 ans (contre environ 8 millions de garçons) n’auront jamais la chance d’apprendre à lire ou à écrire à l’école primaire, selon un nouveau rapport de l’Institut de statistique de l’UNESCO (ISU)- Déclaration de la journée internationale de la femme 2016.

2. Revue de la Littérature

2.1. Le Capital Humain


![Diagramme de l'Investissement en éducation, Accroissement de la productivité, et Accroissement du revenu d'emploi](image)

**Figure 1 :** impact de l’Éducation sur la Productivité et le revenu


L’accélération des technologies dans les pays industrialisés exige de nouveaux savoirs et savoir faire qui se produisent sur le tas [7]. D’après Levin [8] résume la théorie du capital humain en cinq postulats : la relation entre 1) les investissements en éducation d’une société et la croissance économique, 2) l’investissement en éducation d’un individu et les revenus économiques de cet investissement, 3) la distribution de l’investissement en éducation à l’intérieur de la population et la distribution des salaires, 4) la demande pour éducation comme réponse de la productivité comme investissement et 5) l’investissement total sur la formation en emploi aussi bien que la division du poids financier entre le travailleur et la société.

Il existe donc une relation entre positive entre la formation accumulée et les revenus. Au niveau micro-économique, les couts et les dépenses effectués par un individu pour sa scolarité forme un investissement pour l’acquisition des habiletés et des connaissances que réclame le système de production. Le niveau d’instruction d’un individu est un capital qu’il investit pour réaliser des gains. L’individu qui acquiert l’éducation ou la formation réalise des bénéfices, car il augmente sa probabilité d’accès à un emploi mieux rémunéré et plus prestigieux. Qui plus est, les résultats d’analyse récente de Osberg [9] isolant la part du rendement économique de l’instruction attribuable à l’alphabétisme chez les adultes occupant un emploi au Canada, montre que, chez les hommes qui travaillent à plein temps toute l’année, 30 % du revenu attribuable à l’instruction dérivent de la capacité de lecture. Au niveau macroéconomique, une formation supplémentaire pour les travailleurs constitue une ressource potentielle d’augmenter la productivité de l’entreprise et l’accroissement des gains des employés eux-mêmes. Les gains additionnels attribuables à la formation supplémentaire des employés génèrent des profits pour la collectivité, car les personnes les plus instruites et donc les mieux rémunérées payent à l’État des taxes plus élevée. Les théoriciens du capital humain considèrent l’instruction comme un instrument efficace pour régler le problème des inégalités sociales : « First, an educational program that transforms a low-skills person raises his productivity and therefore earnings. Second, it reduces the total supply of low-skill workers, which leads in turn to an increased in their wages.
Third, it increases the supply of high-skill workers, and this lowers their wages. The net result is that total output rises (because the increase in productivity among formerly uneducated workers), the distribution of earnings become more equal, and each individual is still rewarded according to merit. What could be more ideal? [10 ». Selon [11], le modèle néoclassique de la hiérarchie des revenus entre les travailleurs est fondé sur trois concepts de base : la fonction de production pour les employeurs, l’utilité pour les travailleurs et l’optimisation des comportements et des attitudes de ces agents sur le marché. Le modèle de Becker constitue un progrès important, car il permet d’expliquer les écarts de revenus entre les individus par un critère objectif. L’explication du maintien en longue période de différences de salaire non compensatrices est plus illusoire que réelle par le modèle. [11]. Granovetter [12] trouve que le modèle semble réducteur pour l’ignorance les autres facteurs de productivité. Il suppose que la productivité et le salaire de l’employé augmentent sans arrêt avec la scolarité. Alors que cette productivité découle également de i) de la technologie existant dans l’entreprise sous forme d’outillage, ii) de la consommation et de l’écoulement de la production et iii) de l’organisation du travail. De surcroît, le modèle du capital humain orthodoxe est incapable d’expliquer toutes les inégalités de salaires, car comme l’écrit Granovetter [12]. Quels que soient les principes de rationalité du demandeur d’emploi, l’emploi obtenu ne dépend pas seulement de ses choix, mais aussi et surtout des caractéristiques du marché de l’emploi. Peu d’emplois disponibles et beaucoup de demandeurs d’emploi engendrent des situations de concurrence et d’inflation de diplômés [13]; l’entrée et l’évolution du diplômé sur le marché du travail dépendent d’une gamme de considérations sociales liées, par exemple, au sexe, à l’âge et à l’appartenance ethnic.


On a déduit, à partir de ces théories que l’amélioration des conditions d’accès des filles à l’éducation ainsi que leur réussite aurait pour effet d’améliorer leur situation économique et sociale, et d’accroître la contribution des femmes au développement ([13] Académie africaine des sciences 1995)

Cependant, cette conception a été contestée par les économistes et les sociologues dits radicaux à partir des années 70, qui ont reproché à la théorie originale du capital humain de ne pas avoir accordé suffisamment d’attention aux questions concernant la redistribution, plus spécifiquement les conditions d’embauche et de détermination des niveaux de salaire accordés aux employés [15] [16].

Les différentes théories émergeant des analyses de ces économistes et sociologues ont mis en doute la capacité de l’école à enrayer ou à diminuer les différences hommes-femmes lors de l’embauche ainsi que les avantages reçus. Parmi ces théories sont les suivantes :

2.2. Les théories alternatives

2.2.1. La Théorie du Filtre Proposée initialement par Arrow (1973) et Spencer (1973), cités par [3]. Cette théorie pose que le principal rôle de l’école n’est pas la création d’un capital humain, mais de filtrer la main-d’œuvre pour les employeurs.

2.2.2. La théorie de la Concurrence pour l’Emploi Proposée par Thurow et Lucas (1972); Thurow (1974), selon [3], cette théorie suggère que le principal rôle de l’école est de préparer la main-d’œuvre pour être formée au sein des entreprises. Lorsque des postes deviennent vacants, les demandeurs d’emplois se trouvent devant une file d’attente composée des gens provenant de marchés d’emplois internes et externes. Les marchés d’emplois internes concernent la main-d’œuvre interne de l’entreprise alors que les marchés d’emplois externes réfèrent aux postulants d’emplois provenant de l’extérieur de l’entreprise. Puisque c’est la capacité à être formé plutôt que le capital possédé qui est valorisé au moment de l’embauche, les salaires reçus ne sont pas nécessairement déterminés par les niveaux scolaires atteints.

2.2.3 La théorie de la segmentation Initialement proposé par Edwards (1979); Edwards et Reich (1982), selon [3] la théorie de la segmentation indique qu’il n’y a pas un seul marché d’emplois mais plusieurs marchés dont la différentiation repose sur les caractéristiques des postulants des emplois (genre, race, etc.) ou sur les secteurs d’emplois (industrie de la construction versus industrie de la couture). Les principales caractéristiques de cette segmentation se résument comme suit [17] OCDE, 1998:

- Le marché du travail est divisé, à différents degrés, en secteurs à salaires élevés et en secteurs à salaires faibles.
- Le passage des travailleurs d’un secteur à un autre est rendu difficile par divers mécanismes de blocage qui sont entre autres la discrimination par le sexe des emplois et la division du marché de travail en deux secteurs primaire et secondaire.
- Les emplois les mieux rémunérés (dû aux changements technologiques : substitution des travailleurs) sont ceux qui se situent dans ces voies de promotion alors que ceux qui sont mal payés débouchent rarement sur des meilleurs emplois [17].
- Les emplois les mieux rémunérés sont relativement stables alors que ceux qui sont mal payés sont généralement instables. Selon cette théorie, la discrimination des emplois résulte du fait que les employeurs associent différents types de personnes aux emplois disponibles. Ainsi, pour les femmes, la situation ne semble s'être significativement améliorée pour les raisons suivantes [16]:
  - Même si le nombre de femmes dans certains emplois masculinisés a augmenté, de tels emplois tendent à se féminiser par la suite.
  - Les emplois où le taux de ségrégation est le plus élevé tendent à croître plus rapidement que les autres.
  - Les professions très masculinisées ont tendance à le demeurer ou à le devenir davantage.

2.3. Évolution des Paradigmes concernant le Rôle des Femmes dans le Développement Économique et Social

Les trois principaux paradigmes qui ont vu le jour à titre d'approche conceptuel sur le rôle des femmes dans le développement sont le WID ("women in development), le WAD (women and development), et le GAD (gender and development).

2.3.1 Le WID Le concept WID est né au début des années 70, après la publication du livre d'Ester Boserup. Fondé sur les théories de la modernisation des années 50 et 70, ce paradigme suppose que l'amélioration de la situation des femmes et, ainsi, l'accroissement de leur contribution au développement ne sont possibles que moyennant leur intégration dans les structures économiques. Influencé par la thése fonctionnaliste, ce paradigme ne questionne pas les structures sociales existantes favorisant la dépendance des femmes sur les hommes et diminuent, en conséquence, leur contribution potentielle au développement. Pour ce paradigme, le problème ne réside pas dans l'intégration des femmes dans les structures sociales car celles-ci y fonctionnent déjà ; il se situe plutôt dans la non-reconnaissance du fait que le travail effectué par les femmes au sein des ménages est d'égale importance que celui qu'elles pourraient effectuer dans les différents marchés d'emplois. Les auteurs suivants ont contribué au développement de ce courant de pensée: Pattern et Nukunya, (1982); McSweeney et Friedman (1982); Droy, (1985); Mies, (1986); Parpart, (1989); Robert (1989); Charlton (1997); Visvanathan (1997). Parmi les faiblesses de ce paradigme, on note son incapacité à expliquer les relations entre le patriarcat, les différents modes de production, de subordination et d'oppression des femmes [22], Lafontaine, [25], [19].

2.3.2. Le WAD Le concept de WAD est né pendant la seconde moitié des années 80 en réaction aux faiblesses notées dans le paradigme du WID. Contrairement au WID, le WAD pose que les structures sociales existantes favorisent la dépendance des femmes sur les hommes et diminuent, en conséquence, leur contribution potentielle au développement. Pour ce paradigme, le problème ne réside pas dans l'intégration des femmes dans les structures sociales car celles-ci y fonctionnent déjà ; il se situe plutôt dans la non-reconnaissance du fait que le travail effectué par les femmes au sein des ménages est d'égale importance que celui qu'elles pourraient effectuer dans les différents marchés d'emplois. Les auteurs suivants ont contribué au développement de ce courant de pensée: Pattern et Nukunya, (1982); McSweeney et Friedman (1982); Droy, (1985); Mies, (1986); Parpart, (1989); Robert (1989); Charlton (1997); Visvanathan (1997). Parmi les faiblesses de ce paradigme, on note son incapacité à expliquer les relations entre le patriarcat, les différents modes de production, de subordination et d'oppression des femmes [22], Lafontaine, [25], [19].

2.3.3. Le GAD Le paradigme basé sur le GAD, est né de la pensée féministe socialiste dans les années 80 à la suite des insuffisances de WID et de WAD. Le GAD rejette la différentiation des rôles économiques basée sur le sexe. Considérant que les femmes sont capables d'assumer les mêmes responsabilités que les hommes, on insiste dans ce paradigme plutôt sur la nécessité de la création des conditions, comme la mise en place des structures de gardiennage des enfants, qui devraient favoriser leur participation aux activités économiques en dehors du foyer. Les auteurs suivants ont analysé sur ce paradigme: Stewart, et Champagne (1989); Maguire (1984) [9]; [23] Rathgeber [24], Dagenais et Piché, (1994); Palmer (1979); [21].

2.3.4. Critiques féministes de WID, WAD et GAD Ces trois paradigmes ont cependant fait l’objet de critiques de la part de certaines féministes. Pour Lafontaine [25], par exemple, la plus grande faiblesses de ces trois paradigmes, en particulier, et de l’approche femme et développement, en général réside dans la dichotomie : privé (travail à la maison) – public (travail dans le monde économique et politique externe au foyer) que prône la société occidentale. Selon cet auteur, ce concept favorise, l'exclusion, la marginalisation et l'oppression des femmes. D'après [2]: Tinker (1979); [9]; Blumberg (1983); Buvinic (1983); Rathgeber [24], la marginalisation et l'oppression des femmes découlent des biais sexistes présents dans les projets de développement. Certains auteurs tels DAWN [22]; Synder et Tadesse (1995), proposent que ces biais pourraient être éliminés. L’avènement de cultures et de méthodes alternatives
favoriseraient une plus grande justice sociale et économique, une paix et un développement débarrassé de toute oppression.

2.4. La Pédagogie du Genre

Marcus Samuelsson and Joakim Samuelsson en [26] examinent des différences de genre entre les filles et les garçons dans le cadre de la salle de classe et leurs relations de succès en mathématiques et les aspects d'autorégulations des compétences d'apprentissages. Les réponses de 6758 étudiants suédois permettent de déduire la conception des garçons et des filles dans la salle de classe et de certaines différences par rapport aux mathématiques. Selon la disposition de la salle de classe, les auteurs trouvent que les garçons sentent qu'ils travaillent plus en groupes que les filles le font. Les garçons pensent aussi qu'ils ont une influence sur le contenu et sont plus impliqués durant la leçon que les filles. Quant a ce qui concerne les relations des étudiants par rapport aux mathématiques, les garçons les perçoivent être plus importantes que les filles. L'étude indique pour les enseignants comment les garçons et des filles dans les résultats en mathématiques.

Andy Dickerson [27], Steven MckIntosh et christine Valente examinent en 2015 des différences entre 19 pays africains dans les résultats des tests de mathématiques chez les enfants des écoles primaires. Les résultats montrent une différence significative dans les résultats des tests de mathématiques en faveur des garçons, semblable à celle observée précédemment dans les pays développés.

Cette différence ne peut s'expliquer par les différences entre les sexes en ce qui concerne la qualité de l'école, l'environnement familial ou la discrimination entre les sexes au sein de l'école en ce qui concerne l'accès aux intrants scolaires.

Cependant, l'écart entre les sexes varie grandement selon les caractéristiques des régions où vivent les élèves, et ces caractéristiques régionales prédissent davantage l'écart entre les sexes que l'éducation des parents et les caractéristiques de l'école, y compris le sexe des enseignants. Au niveau inter-pays, les différences dans les taux de fécondité représentent près de la moitié de la variation de l'écart entre les sexes, et cette relation n'est pas due à la corrélation entre la fécondité et le PIB.

Toujours en 2015, Natalia Nollenberger, Núria Rodriguez-Planas et Almudena Sevilla [28] font une recherche sur l'écart du genre en Mathématiques : le rôle de la culture. Ils analysent les résultats des tests de la deuxième génération des immigrants. Ils trouvent que les immigrantes filles dont les parents viennent d'un pays à égalité de genre perfont mieux - des résultats semblables que ceux des garçons - que des filles immigrantes dont les parents viennent des pays dont l'égalité de genre est moindre. Ceci suggère un important rôle des croyances culturelles sur les femmes dans la société.

La transmission des croyances culturelles comptent au moins pour les deux tiers de la contribution totale des facteurs relatifs au genre.


Ces résultats ont été aussi confirmés par les chercheurs Brown et Kanyongo en [33]. [41] Gherasim, Butnaru et Mairean [42] ont trouvé des effets de genre dans des variables telles que les objectifs de rendement, les environnements de classe et les résultats en mathématiques parmi jeunes filles montrant que les filles obtiennent des notes supérieures en mathématiques garçons. Les filles ont rapporté (a) un...
soutien plus élevé en salle de classe, des objectifs de réduction de la performance Shim, Ryan et Anderson, [48] et (b) plus de maîtrise des matériaux d'apprentissage Pekrun, Elliot et Maier, [47]. Un autre aspect important trouvé par les chercheurs était la pratique de l'enseignement, en particulier le comportement de l'enseignant, comme (a) être réactif et utile Patrick, Ryan, & Kaplan, [44], Puklek, Levpeuseck & Zupancic, [45], Ahmed, Minnaert, van der Werf et Kuyper, [46]. Un autre aspect, les attitudes des élèves, a été étudié par Jones et Young [43], qui a constaté que les garçons avaient des attitudes plus favorables. Vers les mathématiques et la science que les filles. Les émotions envers les mathématiques. Étudié par Frenzel, Pekrun et Goetz [34] qui ont constaté que les filles ont connu moins de plaisir. Les garçons, en revanche, éprouvaient moins d'anxiété et moins Désespoir envers les mathématiques que les filles. Ils ont également constaté que les filles se sentaient légèrement Plus de honte que les garçons (33)).

En 2012, la perception dans les pays développés, incluant Canada, que le problème du genre et mathématiques sont réglés, fut la préoccupation de Jennifer Hall [35] qui a défié cette perception en donnant un aperçu des problèmes du genre dans trois domaines – résultat, attitude et participation- au niveau élémentaire jusqu'à l'université. Son analyse dont les informations proviennent des sources de données Ontariennes est comparée à la méta-analyse de recherches impliquant les données des pays ayant des cultures semblables à celle du Canada, par exemple l'Australie, les Royaumes Unis. Les données primaires de l'auteure émergent d'une grande échelle d'évaluation de mathématiques par exemple, de PISA et EQAO, des bases de données de Statistiques nationales, par exemple Statistiques Canada et le Centre National pour les statistiques de l'Education. A l'encontre de la perception susmentionnée, son analyse indique que les problèmes du genre existent toujours en mathématiques dans les pays développés, y compris le Canada. L'écart du genre est particulièrement large en termes de la participation et des attitudes des apprenants : les garçons ont substantiellement des attitudes positives face aux mathématiques et des niveaux élevés de participation sans obligation en mathématiques que les filles. Jennifer Hall conclut sur une discussion des implications des résultats et des suggestions des étapes possibles qui peuvent être prises pour améliorer la situation courante.


Ces différentes recherches dans le domaine du genre et d’éducation des mathématiques sont en mouvement perpétuel avec la mondialisation, les changements des cultures dus à l’immigration, aux désirs des femmes et des hommes qui changent eux-mêmes, l’éducation devient difficile avec beaucoup d’interdiction. Quelles sont les nouvelles idées sur la pédagogie du genre dans les pays en voie de développement ? Des pays en voie de développement vue la perte des valeurs de la société pourrait renoncer à l’école publique et choisir des écoles privées quels que soient les couts dans leurs revenus ! Des familles sauvées ne constituent-elles pas des quartiers sauvés, des communautés sauvées, des villes sauvées et finalement des pays sauvés ?

2.5. Contribution : Comment améliorer la situation actuelle ? Discussion ?

Mumanddad at school for work (MADASFW) est une organisation à but non lucrative, dont je suis la fondatrice et propriétaire, et qui est enregistrée à Calgary Alberta en 2008. Elle est dédiée au développement du Capital Humain- centrée sur l’éducation au Canada. A travers MADASFW, nous tentons depuis 2013 à résoudre les problèmes du genre dans nos enseignements. La preuve théorique est faite dans les recherches aussi bien dans les pays en voie de développement et les pays industrialisés et le problème persiste. Notre organisation l’applique dans la communauté afin d’apporter notre pierre à la construction de l’égalité entre les filles et les garçons que nous clamons depuis 1960 et dont les organisations prennent soins en créant des projets, nous avons été apprenants, nous sommes enseignants, nous avons été filles dans les classes uniques de filles et dans les classes mixtes. En mettant tous ces facteurs ensemble, nous sommes conscients des différentes situations et
comportements, cultures, que nous pouvons rencontrer dans nos classes de mathématiques en ce qui concerne cette recherche. Nous tenons à aider, non pas à la manière des organisations ayant des intérêts et cherchant coute que coute à en tirer profit ; mais à régler un problème qui s’énarce. Le problème quitte nos familles qui privilégient l’éducation des garçons, leur école et leur comportement patriarcat depuis la base. Nous formons la nouvelle génération à couper le mal a la racine en leur apprenant que, filles et garçons sont les mêmes.

Plusieurs cultures en Europe, en Afrique, en Asie, en Océanie, en Amérique et chacun stéréotype les filles et les garçons de différentes manières. Ils peuvent apprendre tout ce qu’ils veulent et travailler dans tous les domaines ou ils veulent. Si nous réussissons dans nos familles, nous le réussirons dans nos quartiers et la communauté prendra feu. Nous pouvons contaminer facilement le monde par nos croyances d’aider le genre, les filles et les garçons, a peu de confiance, à affronter ou choisir ou embrasser avec fierté et amour n’importe quel domaine de leur vie.

Partout ou nous enseignons les mathématiques, nous définons les apprenants qu’ils auront tous A OU B dans la matière à la fin de la session. L’enseignant n’est pas en classe pour faire peur aux apprenants. Nous avons plusieurs stratégies pour enseigner les enfants telles que les théories nous le mentionnent. Nous avons aussi la course qu’impose le système scolaire de finir tel ou tel programme. Ensemble avec les élèves et les parents, dans la confiance, nous y parviendrons. En considérant dans la salle de classe que nous sommes des élèves nous-mêmes permanents, des apprenants, des enseignants, des parents, nous pourrons tout faire sans grande peur avec les élèves ou étudiants.

3. Références


Development of Gender Achievement Gaps in Mathematics


ménage.

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performance: A meta-

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Session 28: Global Issues in Education and Research

Title: Framing a Model to Assess Multiliteracy
(Authors: Kellie Buckley-Walker, Ian Brown, Peter Captui, Lori Lockyer, Jim Tognolini)

Title: Exploring Perceptions of Education among Refugee Youth in Nyarugusu Camp
(Author: Jessica Msofe)

Title: Making Connections: The Co-Evolution of Professional Development and Teaching Practice in Mathematics Education
(Authors: Tina Rapke, Marc Husband, Jennifer Hall)
Framing a Model to Assess Multiliteracy

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Abstract

The ubiquitous nature of technology has had a dramatic impact on the way we use and practice language in our lives. As such, many researchers and theorists have considered new definitions of literacy. The project reported in this paper uses the term multiliteracy based on two concepts: (i) that language is used to make meaning in different ways and in different contexts and (ii) that meaning is made through multimodality (i.e., different modes and combinations of modes of communication).

To clarify the skills that are required by a multiliterate learner, a conceptual model was devised. This model is underpinned by the notion that learning occurs in a technology-rich, multimodal context. Emphasis is placed on the contemporary communications and information environment learners operate within. Learners must engage with one or more modes of communication including text, image, video and sound (multimodality). Through these modes, the multiliterate learner creates interaction between oral, visual, audio, gestural, tactile and spatial patterns to make meaning. The model is based on Bloom’s taxonomy of educational outcomes with revisions that incorporate more recent thinking and research within the technology-based learning contexts.

Teachers have evolved pedagogies to embed the technology-rich multimodal contexts. As such, learners are presented with a variety of ways to make meaning from the information communicated to them, as well as, creating meaning using a range of modes. However, we need to know to what extent students are able to make and create meaning from a variety of different modes of communication through the development of the skills outlined in the conceptual model. Currently, no assessment tool exists which accommodates the complexity of learning designs present for today’s learners.

In Australian, the introduction of a national curriculum has led educational jurisdictions to place emphasis on multimodal learning and the new conceptions of literacy. Therefore, there is a need for teachers to assess the extent to which students have developed these skills. However, current assessment practices that use paper-and-pen formats are too narrow and limited to assess multiliteracy skills (e.g., Dawson & Siemens, 2014); therefore, updating assessment practice is essential.

The online-Multiliteracy (o-MLit) assessment was constructed in consultation with teachers, researchers and digital designers. The functioning of the items and the quality of the o-MLit was verified using two groups of students: the first group (n=19) was used in a pilot study of the items and the second (n=299) was used in a field trial. Two important areas for improvement were identified: (i) the items assessing the higher order skills need to be more cognitively demanding and (ii) some of the items need to be modified in order to improve their functionality. The assessment of multiliteracy skills enables teachers to ‘diagnose’ and track the growth in students’ abilities over time, as well as, assisting them to design learning activities based on students’ multiliteracy skills.
Exploring Perceptions of Education among Refugee Youth in Nyarugusu Camp

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Abstract

The overwhelming assumption among scholars and humanitarian agencies is that education is “good” and that it acts as protection in a refugee context. While education does have the potential to contribute to positive life outcomes, when dealing with different refugee populations who have varied perceptions of education and experiences with education, this is not always the case. Some studies demonstrate that schools in refugee camps are often not viewed as safe spaces. These studies show that individual and group experiences and realities in each refugee situation must be considered; assumptions cannot be made about how communities view education and the importance of education. The proposed study will focus on a protracted refugee situation in northwestern Tanzania, where Nyarugusu Camp is home to Congolese and Burundian refugees, many of whom have lived there for 20+ years. Although estimates regarding population tend to differ since influxes of refugee can, and do, occur at any time, it is estimated that there are approximately 160,000 refugees currently living in Nyarugusu [22]. Given that nearly half of the people in refugee camps tend to be under the age of 18 [21], it can be estimated that there are approximately 80,000 children and youth in this particular camp, yet as of 2015, Nyarugusu had only 12 primary school and 4 secondary schools [9]. While low rates of enrolment and completion can be due to under-funding on the part of the international community, refugee youth may not access education due to other, underlying reasons that are rarely explored, such as negative prior experiences with, or perceptions of, education [2].

With low rates of enrolment and completion among refugees in Nyarugusu Camp, particularly in secondary school, the focus needs to turn to planning education with refugees rather than for refugees [24]. As Martone points out, education is one of the only fields in humanitarian assistance in which “the blinkered nonsense of the ‘we know what is best for them’ approach survives unchallenged” [13]. By exploring refugee youths’ perceptions of education in Nyarugusu Camp, as well as the barriers that they face in accessing education, those responsible for planning and delivering educational programming may have a better idea of what is wanted and needed, thus encouraging higher rates of both enrollment and completion at the secondary school level. In this way, the proposed study has the potential to benefit both educational administrators and teachers, but also more importantly, the students and communities themselves, as education has the potential to be linked with positive personal life outcomes [8] [15] as well as peace, stability, and security in a nation [1] [2] [3] [19].

2. Proposed Research Questions

This study will ask the following research questions: (1) What do youth view as the purpose of
education? (2) What have been their prior experiences with education? (3) How do youth view the education that is currently available in the camp? (4) How can education in the camp become both more accessible and more useful?

3. Methodology

To explore the youths’ perceptions of education and barriers to accessing education in a refugee camp, the proposed study will use a focused ethnography. A focused ethnography is applied to “focus on a distinct issue or shared experience in cultures or sub-cultures in specific settings… rather than communities” [6]. Focused ethnographies have often been used in healthcare settings, but relevant to this proposed study, have also been argued to also be a useful methodology in conflict zones [17]. For example, Skaras and Breidlid conducted a focused ethnography in exploring the teaching of history in South Sudan, and found that “in conflict settings with limited access and security, focused ethnography is specifically well suited to get an in-depth understanding of phenomena for teaching and learning in schools” [17].

3.1. Methods

Ethnographies rely upon several different methods of data collection, since you are immersed in a culture or sub-culture and everything tends to become data [25]. Participant observation and semi-structured interviews will serve as the main data collection methods, but conversations, journal or diary writing, and perhaps visual materials, such as drawings or photographs, will also be employed. Because this study will focus on a population where there may be low English proficiency, including visual materials into the research design can bring up new ideas and concepts that may not have been discussed in an interview setting.

3.2. Research Site and Participants

The proposed study will focus on Nyarugusu Camp in Tanzania, for a few reasons. First of all, Kenya and Tanzania are said to have two of the most challenging and long-lasting protracted refugee situations in Africa [12]. Since the 1950s, Tanzania has hosted hundreds of thousands of refugees fleeing successive wars in their neighboring countries of Democratic Republic of the Congo, Rwanda, and Burundi. In addition, Tanzania has an encampment policy, meaning that refugees are forbidden to travel more than four kilometers from the camp for any reason, including to access education [12] [22] [26]. A lack of post-primary education in the camp means that many refugee youth do not have the opportunity to continue their studies, and to gain the knowledge and skills necessary not only to protect themselves, but to rebuild their communities and countries of origin [2] [4] [7] [24].

The proposed study will look at refugee youth in the camp, both those who attend secondary school regularly, and those who do not. This may result in three groups of youth: those who regularly attend secondary school, those who are enrolled but do not attend regularly, and those who are not enrolled at all. The differences between these groups of youth will be explored, to determine the factors that are involved in their perceptions of education and their decision to either attend or not attend secondary school.

4. Conclusion

As Anselme and Hands claim, “To ensure the economic, social, and political development of a society that has been severely affected by conflict or disaster, it is imperative that there be a youth population of capable, productive, and educated citizens who may provide an exit strategy from the situation…. Access to post-primary education creates long-term sustainable growth and human development that is crucial for the rebuilding…of states that have been weakened by conflict” [2]. Education in these refugee camp settings is provided by humanitarian organizations who may lack the cultural and historical understanding of the communities that they serve. Because there is no ‘one-size-fits-all’ model when it comes to education in refugee settings, this proposed study provides an important step in understanding the perceptions of, and the needs of, refugee youth when it comes to the provision of education.

5. References


Making Connections: The Co-Evolution of Professional Development and Teaching Practice in Mathematics Education

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Abstract

In this paper, we describe the learning of teacher educators and in-service teachers who engaged in a video club to examine ways to support students to connect and build upon others’ mathematical ideas. Our study adds to the literature on new advances in professional development as our results suggest that professional development in mathematics can be traced and conceptualized through the evolution of teaching strategies that are shared in video clubs and used in classrooms of both teachers and teacher educators.

1. Introduction

Ideas about the learning and teaching of mathematics have changed over the last couple of decades [1]. Consequently, so should the practices of mathematics teacher educators. Placing students’ thinking at the heart of instruction and supporting students to connect mathematical ideas is clearly valued by the mathematics education community (e.g., [2] [3]). However, using student thinking effectively in mathematics classrooms has proven to be a challenging task (e.g., [4] [5]). Much of the research that looks at supporting teachers to place students’ mathematical thinking at the center of their instruction has involved the use of video (e.g., [6]). Such research typically involves video clubs – communities of teachers viewing and discussing videos from their own classrooms together on a regular basis (e.g., [7]). Researchers have considered the role of the teacher (e.g., [8]) and the role of the teacher educator (e.g., [9]) to examine how these clubs can form in ways that have an influence on student learning. Specifically, studies tend to focus primarily on teacher learning (e.g., [10]) and strategies for facilitating discussion (e.g., [11]), while placing less emphasis on the learning of teacher educators.

At the same time, academics are interested in new ways to offer Professional Development (PD) and to research new directions in PD [12]. Recommendations have been made that new directions in PD should be designed and studied through ideas about classroom participation and participation in PD co-evolving. That is, we need to examine how classroom practice is coupled with PD experiences. Kazemi and Hubbard [12] suggest that we not only look unidirectionally at how PD influences classroom practice but also at how classroom practice informs and influences PD experiences.

Here, we add to the extant body of literature by examining the learning of both teacher educators and in-service teachers through participation in a video club whose goal was to examine teaching strategies that support students to build on and connect mathematical ideas. We describe teaching strategies that were shared during the video club meetings and evolved through teachers’ use in their elementary school classrooms and teacher educators’ use in their university classrooms (with pre-service teachers). Specifically, we investigate the question: How do teaching strategies evolve in video clubs and in mathematics classrooms?

2. Situating the research

The literature on teacher educators’ learning and roles in video clubs, as well as the literature about connecting mathematical ideas, are of relevance to this study.

In the context of learning and mathematics teaching, the term “adaptive expertise” has appeared as a characteristic in recent discussions about reforms in teacher education (e.g., [13] [14]). Adaptive experts “continuously consider alternative approaches and interpretations” [13] (p. 31) and “actively seek in-depth knowledge about the content of learning and how to teach it effectively to their particular students and in their specific context” [14] (p. 5). This implies that teacher educators who exhibit the characteristics of adaptive experts are continuously learning by looking for strategies to share, adapt, and use within teacher education contexts that would enhance the learning and
teaching of mathematics. That is, as practices of teachers change, so too should those of teacher educators.

Ideas about teacher educators’ learning can also be heard in Coles’ statement regarding his facilitation of video clubs: “I engage in research to become more sensitive to the situations in which I find myself as a teacher, and hope others may be helped to see more and so be able to act differently in their own work” [9] (p. 171). Research on video clubs tends to emphasize teacher learning, its impact on the learning of school-aged students, and the facilitation of discussion to occasion teachers to notice student thinking or to change their practice (e.g., [15] [16]). Discussions that specifically address teacher educators and video clubs often focus on strategies that can be used to facilitate discussion about the videos that are brought into video clubs (e.g., [6] [9] [11] [17]). These publications typically do not provide specifics about how the video clubs influence new strategies in the facilitators’ own classrooms involving pre-service teachers.

Coles [9] and Kazemi and Hubbard [12] both use the term “co-evolve” in relation to PD. Kazemi and Hubbard assert that most research attends to what teachers learn as a result of PD [12]. However, they assert that to advance teacher learning and the design of PD, we should be “looking at the coevolution of participation between classroom practice and PD” [12] (p. 429). We take this to mean that Kazemi and Hubbard are suggesting that researchers should be focused on how teachers use and enact strategies from PD in their own classrooms and vice versa. Coles also speaks about co-evolution in terms of acting differently: “Through a recursive process of acting in the world and the world acting back we learn to co-ordinate our actions with others” [9] (p. 170). We interpret these two pieces of literature together to mean that we not only need to investigate if teachers/instructors do indeed use strategies from PD sessions but also how or whether they are adapting them for use in their own teaching.

The literature on mathematical connections is important here, as the video club participants decided that the goal of the video club was to support students to build on and connect each other’s mathematical ideas as they emerged through class discussions. From this perspective, teaching and learning are conceptualized as the ongoing action of making connections – Teachers select tasks that connect with students’ prior knowledge, and students connect previous understandings with new material (e.g., [18]). In response to these demands, Smith and Stein recommend five practices to orchestrate mathematical discussions: (1) Anticipate student responses, (2) Monitor students’ responses, (3) Select student work, (4) Sequence student work, and (5) Draw mathematical connections [19]. Strategies that support connecting mathematical ideas, which Smith and Stein consider to be the most challenging practice, can occur at the beginning, middle, and end of a lesson [19]. For example, at the launch of lessons, Kasmer and Kim found that making predictions provided all students with opportunities to evoke prior knowledge and use it to build bridges with new material [20]. Warner highlighted the value of peer-to-peer explanations during a lesson, while students are doing mathematics [21]. These interactions facilitated students to build on what is known with new ideas. At the end of a lesson, Lee recommends “look back” strategies as a way to recall previously learned material and connect this material with current investigations [22]. Although these researchers identify ideas about how a teacher might support students to make connections, there is a lack of clear articulation about exactly what strategies teachers can use in their own classrooms.

3. Conceptual perspective

Like much of the work on video clubs (e.g., [23], [24]), our work draws on a situated perspective, wherein learning is viewed through participation in a group [25]. In particular, learning occurs through the interaction of members and is mediated through the use of tools and resources in the group. Specifically, learning can be evidenced if there is routine use of a resource (in this case, teaching strategies). Our conceptual stance aligns with work on professional development in mathematics education, specifically Coles’ assertion that “It is the arising of possibilities for new or different ways of acting that I take as the mark of learning and the aim of professional development activity” [9] (p. 180). In other words, we evidence learning of teacher educators by first identifying resources (i.e., teaching strategies) shared in the video club. Then, we provide descriptions of how teacher educators and in-service teachers used the strategies in their own contexts/classrooms.

4. Research design

The video club was comprised of two teacher educators and 11 in-service elementary (Grades 3 to 8) teachers, with five years to more than 25 years of teaching experience. The video club met once a week for two hours, from January to April of 2016. Each week, the in-service teachers were invited to bring in videos that evidenced students building upon and connecting mathematical ideas. Prior to viewing each video, the group anticipated mathematics solutions to the tasks that were used in the video. The group viewed the video in order to evidence student connection-making or building upon mathematical ideas, as well as identify teaching strategies that they felt led to or promoted the students to make connections and to build upon each other’s work. The video club culminated with five of the in-service...
teachers and the two teacher educators co-planning and co-teaching a lesson in a Grade 8 teacher’s classroom (of one of the video club participants).

During the same time period, the two teacher educators co-taught two sections (25 students per section) of a mathematics education course for pre-service teachers preparing to teach mathematics at any level (i.e., Kindergarten to Grade 12). This was an elective course that focused on principles of teaching mathematics for understanding and was part of a revised two-year Bachelor of Education program. This course focused on both mathematics content and pedagogy. A typical class would involve pre-service teachers engaging in a mathematics task for the first two hours of class, while the last hour was spent discussing pedagogy. While co-teaching this course, the teacher educators began to implement some of the strategies for making connections and building upon others’ work discussed in the video club.

4.1. Data collection

Here, we draw upon three datasets, all of which arose from the classrooms of participants in the video club (both teachers and teacher educators). One set consists of video recordings and student work from the lesson that was co-taught by five teacher participants and the two teacher educators in a Grade 8 classroom; another comes from a lesson that was co-taught by one teacher participant and the two teacher educators in a Grade 5/6 classroom. The last dataset comes from the teacher educators’ classes, and took the form of pre-service teachers’ written reflections upon experiencing teaching strategies from the video club in their mathematics methods course. As part of the final assignment, the pre-service teachers were instructed to reflect upon their experiences in the methods course. They were prompted to identify a teaching strategy that they had observed in the class and discuss why they believed it will be the most influential on their future practice.

4.2. Data analysis

The data were analyzed by repeatedly viewing the videos, reading the pre-service teachers’ reflections, and creating an increasingly detailed set of analytic notes. In line with a process suggested by Powell, Francisco, and Maher [26], we identified critical events in the videos and written reflections. Powell et al. explain that once the researcher has viewed and is familiar with all the data, then s/he identifies events that are significant to the research question [26]. Through connecting critical events and analyzing them, codes emerged [27] relating to teachers supporting students to connect and build upon mathematical ideas. Our analysis resulted in crafting descriptions of three teaching actions (one per dataset).

5. Findings

We present our findings in terms of three strategies that originated from teaching strategies that were shared during the video club meetings and that started to be used regularly by the teachers and teacher educators in their classrooms. Specifically, the strategies focus on the educator being explicit about: (1) expectations that thinking will expand, (2) students identifying classmates’ ideas that they can build upon, and (3) students finding thinking that is most different from their own and explaining connections. In the following sections, we describe the strategies and provide evidence that they were used in the classrooms of the video club members.

5.1. Expectations that thinking will expand

One video, brought to video club and shared by a Grade 5/6 teacher, was used as an example to illustrate being explicit about expectations for peer-to-peer interaction. The teacher made it clear to her students that once they had an opportunity to talk with a partner, it was likely that their thinking would change. Specifically, she stated, “Once you’re at the point where you’ve thought of quite a few [solutions] on your own, you’re going to talk with your partner, just as usual, and you’re going to compare notes. Then, together, you’ll see even more.” The idea of inviting students to work together with the intention of changing their thinking appealed to the teachers in the video club because it required students to seriously consider their peers’ thinking. Stating an expectation like “You’ll see even more” also meant that teachers provided explicit support for students to potentially change their minds and set aside their own ideas in support of a better one, or use a better idea to build upon. The teacher indicates that this is a regular practice through her use of the phrase “just as usual”.

5.2. Identifying ideas that can be built upon

In the excerpt below, the teacher explicitly states that the process of building upon is expected to be helpful in expanding one’s own ideas.

Partway into the co-teaching lesson, the Grade 8 teacher stopped her class and instructed them to “take this chance to, like we usually do, go around and look at some of [the work by] the other groups”. In particular, the teacher directed the students “to look for something that will help you build upon your ideas or an idea that you can build upon... We do this all the time, we don’t just want to take someone’s ideas. Let’s see if we can stretch our
thinking and if we can use some of their thinking to help further our own.”

Through the teacher’s prompt, “We don’t just want you to take someone’s ideas”, this example extends the first strategy: Expectations that thinking will expand. Namely, the students were asked to use this thinking to support and develop their own. This notion is further exemplified in the student samples where several groups explicitly identified the idea that they took (see Figures 1 and 2).

As shown in the student work samples, there is a norm being established that students must explicitly identify the idea that they found and are building upon. Also noteworthy here is how the purpose of using peers’ ideas for the pursuit of learning has become a regular practice. This is evidenced by the teacher prefacing her prompt with the phrase “like we usually do” and reiterating this by saying, “We do this all the time”.

5.3. Finding thinking that is the most different and explaining connections

In the methods course, the teacher educators often found themselves at the end of a lesson asking the pre-service teachers to first circulate around the room to look at other groups’ work to identify ideas that they felt were most different from their own and then to explain the ideas through the thinking they presented in their own solution. For example, students may have chosen the “most different” solution in terms of solution presentation (e.g., a visual solution vs. an algebraic solution) or in terms of mathematical content/strategies. Their explanations of the “most different” solution usually involved identifying a common mathematical idea to connect the solutions. Similar to the discussion in Section 5.1, some pre-service teachers specifically spoke about stretching or expanding understanding. For instance, one pre-service teacher, in her reflection, explained that her future teaching was influenced the most by the strategy of “asking students to prove, discuss, and describe the work of another student (often specified to be thinking that did not look like one’s own)”. The pre-service teacher went on to say that this action provides students with an “opportunity to work through an approach that is different…therefore expanding their understanding of both the problem and the solution”. Similarly, another pre-service teacher discussed understanding in the context of being prompted to connect his/her own thinking to that of a peer identified as most different: “With connecting your work to others, it gives you a chance to see their work for more than just face value. When you understand the concepts that you used in your own work and start to notice them in other people’s work, it can be very helpful in seeing them as more similar than different.”

Significant here is that the pre-service teachers believed that their thinking expanded through first identifying and then connecting their ideas to those of their peers that they initially identified as most different.

6. Discussion

Within the findings, there is clear evidence of teachers and teacher educators learning. In terms of a situated perspective, learning can be verified through the teaching strategies being routinely used by the teachers and teacher educators whose classrooms were used to collect the three datasets. In the first and second strategy, the teachers clearly indicated that they routinely use the strategies of (1) being explicit that thinking will change and (2) having students identify classmates’ ideas that can be built upon to stretch students’ thinking. Both teachers used the words “usual”, which indicates routine use. The teacher educators involved in the video club routinely use the strategy of having students find thinking that is the most different and explaining the connections between the solutions.

The findings of this study also speak to the idea of the co-evolution of strategies in PD and classroom practice. The strategies evolved from a teacher sharing in the video club how she explicitly voices to her students her expectation that student thinking will become more based on discussions with peers. This strategy evolved to identifying ideas to be built upon and developed by classmates. This strategy still shared in the idea of “stretching” thinking (or...
developing thinking) but departs from the first strategy because it involves the explicit strategy of identifying a classmate’s idea upon which to build. This strategy was shared in the video club and can be thought of as a community resource. The strategies then evolved to the teacher educators voicing the expectation that pre-service teachers needed to explicitly identify the ideas that they felt were most different than their own and then draw connections. This strategy shares in ideas of stretching thinking or expanding understanding and identifying classmates’ ideas, but deviates as it includes the idea about explicitly identifying classmates’ work that was most different. It is easy to see that both the video club discussions and the classroom implementation influenced the evolution of these strategies. There was also a co-evolution of learning between the teachers and teacher educators through these strategies. Teacher learning can be evidenced as the strategies were used routinely in their classrooms. The teacher educators’ learning can be evidenced through the evolution and use of the strategy of having pre-service teachers explicitly identify ideas that they felt were most different from their own and then draw connections. In other words, the teaching strategies of the video club influenced the teacher educators, who began to act differently in their own classrooms. Particularly, the co-evolution of PD and classroom practice can be traced through the evolution of strategies shared in video club and used in classrooms.

The findings of this study also extend previous research on connecting mathematical ideas. Specifically, the findings address the suggestions to support connection-making through predicting, peer-to-peer explanations, and look-back strategies, such as recalling. Through teachers directing students to identify and then explain the thinking of others that they initial thought to be most different from their own, this action brings together peer-to-peer discussions and look-back strategies. Students needed to reflect on their initial ideas and then discuss their peers’ ideas.

7. Conclusions

This work should be of interest to researchers, practicing teachers, and teacher educators. We have outlined three explicit strategies that teachers can use in their own classrooms to support students to make connections with and build upon others’ mathematical ideas. Furthermore, we add to the existing literature on video clubs and PD by specifically discussing the learning of teacher educators through the use of evolving teaching strategies that we shared in a video club and used in classrooms.

8. References


Session 29: Curriculum, Research and Development

Title: International Opportunities in Education International Student Teaching (IST)
(Author: Robert MacMillan)

Title: Enlisting New Teachers in Clinical Environments (ENTICE) Preceptor Surveys: A Pilot Project
(Authors: Anna Jarrett, Marilou Shreve, Audrey Weymiller)

Title: The Development of Prosody in Students with English as an Additional Language or Dialect through Music
(Authors: Brittany A. McCormack, Christopher Klopper)
International Opportunities in Education International Student Teaching (IST)

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Abstract

Teacher preparation institutions are increasingly looking beyond America's borders as a means of broadening our future teachers' knowledge and multicultural experiences. The idea of creating a "worldly teacher" (Germain, 2008) by universities is part of the driving force behind this increasingly popular and valuable movement. Bridgewater State University believes that the international student teaching (IST) experience fosters a more global perspective by traveling, living and participating professionally in another culture.

As part of this experience, when the students return to the university they will formally present to other students and faculty what they have learned as well as what they should have learned prior to going abroad.

The stresses and successes of teaching children and living in a new country will surely help refine the student teacher abroad. The student teacher aboard will be challenged to educate oneself more than ever, read, learn a new language (or polish their language) and live in a different culture. Formal and informal discussion forums with other students, student teachers and school site faculty (while abroad) will be a hot bed of life lessons, experience sharing, and educational insight. All of our student teachers (central to the university’s selection of candidates to go abroad), in some way or another, seek knowledge to grow themselves and share with others.

Once the student teacher returns and seeks a teaching position, this experience will enhance the opportunities for the student’s employment. Employers readily acknowledge (in conversation with the writer and faculty supervisor) that the student teacher's own practice is improved in that the teacher will learn (from their cooperating teacher) while abroad and will bring their 'improved' self (skill set) back to the US. As a result, their k-12 students ‘back home’ will benefit from their teacher's experience abroad.

The American Association of Colleges for Teacher Education’s (AACTE) Global Diversity Committee selected Bridgewater State University, in large part because of our international student teaching initiative, as the 2017 recipient of the Global and International Perspectives award. We received this award at AACTE’s annual convention, held this spring, 2017, in Tampa, Florida.
Enlisting New Teachers in Clinical Environments (ENTICE) Preceptor Surveys: A Pilot Project

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Abstract

Preceptors for doctor of nursing practice students (DNP) are essential for student and program success. In order to learn the clinical role, DNP students must have qualified preceptors. In the United States, students must compete with students from multiple programs to secure their preceptor(s). It is important to understand why preceptors agree to do this without pay. In order to more efficiently assist student recruit preceptors, the Enlisting New Teachers in Clinical Environments (ENTICE) survey was used to discover motivators and barriers for being a preceptor. A beginning and advanced clinic course were selected for baseline data in 2015, and compared with 2016 preceptor responses. In these preceptors, 'giving back to the profession' remained the most important reason these preceptors chose to teach students in the clinical arena while doing practicing their skills. A significant barrier for these preceptors in both years for both courses was 'decreased productivity'. The 'type of student' was also important. The solution to this problem may be a standardized preceptor guidance program, interprofessional education, online learning opportunities, standardized student pre-clinical competency validation, and negotiating professional entrustable acts.

1. Introduction

As the shortage of medical providers increases, the number of nurse practitioner students entering doctoral level programs also increase. Preceptors for doctorate of nursing practice (DNP) students play a vital role in the education of the next generation of providers [1]. Many providers decide to be preceptors for DNP students to give back to their profession. Preceptors are committed to their role in educating future practitioners and want the preceptor process to be legitimized and recognized by employers and facilities [2]. Preceptors find support from nurse educators to assist in increasing their awareness and confidence of the preceptor role.

2. Literature Review

A preceptor is one who teaches, supports, counsels, coaches, evaluates, serves as a role model, and socializes DNP student to their new role as a provider. The role is essential to help the student assimilate academic knowing into the real work of practice. Students have the luxury of being a learner by a 1:1 relationship with a practicing provider. It allows time for the student to gain confidence while perfecting their advanced skills. Being a good preceptor requires someone who is competent in practice and someone who can intuitively shift between coaching, mentoring, teaching, and role modeling.

In 2015, The University of Arkansas Eleanor Mann School of Nursing was awarded an Advanced Nursing Education supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) to improve the preceptor/student/faculty process. This project, the “Mutually Beneficial Clinical Partnerships” had three major goals with methods to measure outcomes. One goal was to evaluate the clinical preceptor process. The instrument was selected after a careful review of the literature in search of reliable and valid instruments to measure student, preceptor and faculty satisfaction. It was discovered that students evaluate preceptors, faculty evaluate preceptors, and preceptors evaluate students, but the only instrument that ‘got at’ the reason preceptors agree to become preceptors was the Enlisting New Teachers in Clinical Environments (ENTICE): novel ways to engage clinicians[3].

ENTICE was a survey created and piloted by researchers at Duke University in collaboration with the Veterans’ Affairs Medical Center located in Durham, North Carolina in 2013 and was piloted and published in 2014. This group studied incentives
and barriers to being a preceptor for medical students assigned to primary care [3]. However, studies have not examined barriers and motivation for preceptors working with graduate nursing students. From an exhaustive review of literature and under the guidance of collaborators with expertise developing surveys, the collaborative team constructed a survey comprised of six demographic questions. Seven questions aimed to determine past experience as a preceptor and seven “looking forward” questions were developed to discover future willingness to precept students.

One key question in this area asked preceptors to rank from MOST significant to LEAST significant barriers to being a preceptor. From the literature review the following options were given:

- Decreased productivity as a result of time required to teach students
- Inability of learner to write clinic notes in the electronic medical record due to institutional protected health information policies
- Lack of institution/department/professional recognition for teaching
- Lack of physical space
- Lack of support among office clinical colleagues
- Lack of teaching skills
- Patients prefer to see provider without students
- Time to teach results in longer work days
- Type of learner (i.e., MD/NP/PA) determines willingness to precept
- Other

Both survey questions gave an option for ‘other’ in order to allow participants to give additional input or different reasons. The second question was posed similarly with MOST significant to LEAST significant incentives to being a preceptor. The following options were given:

- Access to online training modules
- Adjusted appointment times to incorporate feedback to learner
- Certificate or plaque of appreciation from facility or academic institution
- Enhanced employee benefit package
- Faculty appointment with affiliated academic department
- Monetary compensation
- Access to online training modules
- Adjusted appointment times to incorporate feedback to learner
- Certificate or plaque of appreciation from facility or academic institution
- Enhanced employee benefit package
- Faculty appointment with affiliated academic department
- Monetary compensation
- It allows one to give back to profession
- Other

In 2013, 180 providers were sent the 20-question survey. The response rate was 50%, with 65% of those participants indicating they planned to be a preceptor within the next six months. The overall findings of this study found time pressure and productivity demands were the most important barriers to being a preceptor [1].

Interprofessional education aims to utilize members of different professions to learn together, with each other and about each other [4]. Standardized assessments are national certification examinations taken by students after 500 hours of clinical practice experiences in the DNP program. DNP students do not receive certification until they graduate from the DNP program, but they have the comfort of knowing they meet national minimum requirements for advanced practice nursing.

Competency assessments for preceptors and for students are administered throughout the program after a skills laboratory experience. In addition, preceptor, faculty, and preceptors and students participate in DNP orientation. Faculty preceptors provide evaluation oversight and indirect supervision for DNP students.

The Clinical Co-Preceptor Model aims to improve preceptor, student, and faculty communication. This model incorporates entrustable professional acts, standardized student assessment, interprofessional education, and innovative education practices as outcomes for graduate doctor of nursing practice (DNP) students. Entrustable acts are those identified skills preceptors are comfortable allowing the DNP student to perform independently, which is foundational in this model [5]. A concurrent study is ongoing using a modified Delphi study to determine those entrustable professional acts (see Figure 1).
Specific preceptor competencies were developed using the 2016 Interprofessional Education Collaborative Core Competencies [4]. The competencies were developed around the four general competencies and sub-competencies sequestered around values/ethics for interprofessional practice and communication, roles and responsibilities, and teams/teamwork. This is available and distributed to new preceptors at the time they agree to work as a preceptor. In addition, new preceptors are expected to complete an online preceptor orientation course which introduces them to academic expectations, course outcomes, and the evaluation process.

As part of program evaluation, the ENTICE survey was selected to be administered to current preceptors for graduate nursing students across cohorts over a 3-year period of time (2015 – 2018). Results are collected, analyzed and disseminated to graduate nursing faculty at the end of each semester. Because this instrument was originally designed for medical students, phrases indicating medical students were substituted with nurse practitioner and clinical nurse specialist students. The original study did not attempt to establish initial reliability and validity. Because this pilot study has a small $n$ for each cohort, establishing reliability using measures of internal consistency or repeated measures was not calculated. The original class sizes were small with a mean class size of eight students across cohorts, but as the program grows it may be possible to establish internal consistency of this instrument.

Usability was determined by four individual preceptors’ feedback in a face-to-face meeting at two institutions. All four preceptors indicated the survey was easy to understand and straightforward.
They had no additions to either barriers or motivators.

Face and content validity was established by four faculty members who have had at least five years’ experience in academic teaching, preceptorship, and clinical practice. There was 100% consensus that items listed regarding barriers was correct and complete. There was 75% consensus among these experts about motivators for preceptors. One expert felt faculty appointment with affiliated academic department should be omitted because it was not possible to offer this incentive by the academic institution per policy.

At the end of the first year, responses of preceptors for an advanced and beginner clinical course were described and compared. The ENTICE survey and study was used with permission and approved through University IRB and completed by preceptors for a family nurse practitioner program at the end of each clinical course. The first and last clinical skills courses are compared.

3. Baseline Advanced course (AC) 2015

There were 4 of 7 (57%) preceptors responding to the initial ENTICE survey. Three preceptors were APRNs; 50% were in a specialty practice, 25% in hospitalist roles. The age span was 28 - 49 years of age; 75% were Caucasian; one preceptor was African American. There was a wide disparity in number of years as a preceptor; 50% stated less than one year; 50% reported 14-17 years. Surprisingly, 75% reported they felt the ideal number of months to be a preceptor was 5-6 months/year, but only 50% felt they would be a preceptor in the next six months.

In addition to basic and specific demographics, the survey consisted of two domains: 1) potential barriers to decide not to be a preceptor and 2) reasons one would begin or continue to be a preceptor. Preceptors were asked about potential barriers in their decision to consider to precept NP/CNS students and to rank the top 5 reasons why they would not precept the students. Responses were ranked as 1 = most significant barrier, 2 = second most significant barrier, 3 = third most significant barrier, 4 = fourth most significant barrier and 5 = least significant barrier.

Decreased productivity of the preceptor (decreased visit volume and RVUs) and the type of student (level of nursing practice, i.e., baccalaureate, masters or doctoral nursing student) tied with a mean score of 2.5. For these preceptors, this was a significant barrier and would determine if they would continue to be a preceptor. The least potential barriers included the inability of student to write a clinical note in the electronic health/medical records ($M = 4.25$), lack of department/professional recognition for teaching/being a preceptor ($M = 4.25$), lack of physical space (i.e., not enough exam rooms) ($M = 5$), and patients prefer to see the provider without students ($M = 4.5$).

Reasons why preceptors were considering starting or continuing as a preceptor were posed. The same rating scale 1-5 above was used with 1 = most significant incentive and 5 = least significant incentive. The choices listed for reasons to consider include: access to online training modules with CME/Contract hours for provider, adjusted appointment times to incorporate time for feedback to student, certificate or plaque of appreciation from institution/department, enhances employee benefit package, faculty appointment with affiliated academic department, monetary compensation, parking passes for school of nursing access for related obligations, protected time to attend preceptor specific workshops or educational sessions, reduced productivity expectations (i.e., reduction in encounters, visit volume, or RVUs), teaching/being a preceptor gives the preceptor the opportunity to give something back to the profession.

The most significant reason by the preceptors to consider beginning or continuing to precept is access to online training modules with continuing education/contact hours for providers ($M = 2.5$). Adjustment in appointment times to incorporate time for feedback to student, monetary compensation, and teaching being a preceptor gives the preceptor the opportunity to give something back to the profession scored second highest ($M = 2.75$). The least significant reason ($M = 5.0$) was parking passes for campus related obligations.

4. Baseline Beginner class (BC) 2015

There were 6 of 6 (100 %) preceptors responding to the initial ENTICE survey. Five preceptors were APRNs; 50% were in family practice, with 33% in hospitalist roles. The age span was 44-55 years of age; all six were Caucasian. There was a wide spread in number of years as a preceptor; 50% states less than one year; 25% reported 6-9 years, and 25% had been a preceptor for 14-17 years. 50% reported they felt the ideal number of months to be a preceptor was
5-6 months/year, and 50% felt they would be a preceptor in the next six months.

Decreasing the productivity of the preceptor (decreased visit volume and RVUs) scored low (M = 2.33) on a reverse scaled question, which made it the most significant barrier for these preceptors. Two other selected barriers to being a preceptor for this course were lack of recognition (department and professional) and lack of teaching/preceptor skills (M = 3.81). The least potential barriers included lack of physical space (i.e., not enough exam rooms), length of clinical rotation/ hours, and lack of support among office clinical colleagues. (M = 4.67). The type of student and teaching being a preceptor requires an inordinate amount of time which results in longer work days were not particularly significant for this group of preceptors (M = 4.17).

The most significant reason selected by the preceptors to consider beginning or continuing to preceptor based teaching/being a preceptor gives the preceptor the opportunity to give something back to the profession (M = 1.83), followed by faculty appointment with affiliated academic department and access to online training modules with continuing education/contact hours for providers (M = 2.83). A desire for adjusted appointment times (M = 3.33), and monetary compensation, certificate or plaque of appreciation from institution/department did not seem particularly important to this group of preceptors (M = 4.0). Teaching and being a preceptor gave the preceptor the opportunity to give something back to the profession was a high priority (M = 2.75) for this group. The least significant reason was having parking passes at school for related obligations (M = 4.17).

5. Findings

There was general consensus among the preceptors from both clinical courses. Overall, the biggest barrier to being a preceptor was decreasing the preceptor’s productivity, which may have a financial impact on the preceptor in the form of reimbursement, bonuses, and/or annual raises (M = 2.5, 2.33). The two most stated reasons for continuing to precept from the groups of current preceptors were to give back to profession (M = 2.75, 1.83) and access to online continuing education with continuing education or contact hours (M = 2.50, 2.83).

6. 2015 and 2016 (AC) Preceptor Responses

Results were analyzed by cohorts once two groups had completed and evaluated the same course for two data points. The same courses were analyzed. First, the advance clinical course NURS 6244 was compared to the previous year’s findings. Preceptors were not the same individuals, nor were students. For the second cohort in 2016 in the same advanced course, type of student was the most significant barrier preceptors identified (M = 2.00). However, decreased productivity was most significant for the first cohort in this course (M = 2.50). The least significant continues to be lack of physical space, which speaks well for the clinical environment in which preceptors and students practice (M = 5.00) (see Figure 2).

![Figure 2. 2015 vs. 2016 AC Barriers](image)

Mean scores for all items increased from the advance course 3.84 to 4.09 from the first and second cohorts, which may imply overall less significance to most variables. This may also represent continued experience of the preceptors to teach the same course each year. Unexpectedly, the most significant motivator for preceptors in the second cohort was access to training (M = 2.50), but for the first cohort it was to give back to the profession (M = 1.50). The least significant motivator was parking passes for both cohorts (M = 5.0), but reduced productivity and adjusted appointment times were less significant to the second cohort, perhaps because they are more experienced students, or the type of clinic and preceptor could possibly account for this change (see Figure 3).
7. 2015 and 2016 (BC) Preceptor Responses

Cumulative means across all data points for 2015-2016 beginner practitioner course show the decreased productivity on the part of the preceptors was the most significant barrier ($M = 2.33, 1.60$). Longer work days was the next most significant barrier for the second cohort ($M = 3.00$). The remaining variables for both cohorts fell within a range 3.80 – 4.40, which were closer to the high end of the scale, indicating they were not as significant to either group (see Figure 4).

8. Discussion

There appears to be only slight shifts in the top preceptor barriers and motivators to being a preceptor for DNP students. In these preceptors, in advanced and beginner courses in 2015 and 2016, giving back to the profession which is a motivator that reflects a high degree of professionalism altruism remained the most important reason these preceptors choose to teach students in the clinical arena while doing practicing their skills. A significant barrier for these preceptors in both years for both courses was decreased productivity. The ‘type of student’ was also important. Additionally, creating mechanisms to provide continuing education credits for preceptors may be helpful as a recruitment and retention strategy. This seems logical, because practice environments contain productivity and time pressures that equate to monetary imbursement for preceptors.

One trend that draws particular attention to our faculty is that the length of clinical rotations and the number of hours a preceptor is expected to have a student has risen in rank among the barriers to being a preceptor. Between the first and second cohort, the co-preceptor model has been more fully implemented in our clinical sites. The model when fully implemented calls for an “immersive clinical experience.” This reflects a fundamental increase in the number of hours any one preceptor would be expected to precept any one student as students stay within one clinical site. Previously students would rotate clinical sites with each clinical course. Further attention to mechanisms to provide continuing education credits is also warranted.

This study will continue to be administered three times each year through June 2018. Results will be collected and analyzed by cohorts and by courses.
The survey is approved through the University of Arkansas IRB to be administered anonymously, so it will not be possible to identify individual preceptor responses to determine how their responses change or remain stable over time.

9. Conclusion

Preceptors agree to teach, coach, and mentor DNP students because someone did it for them. They wish to ‘give back’ to their profession. They meet obstacles with the biggest barrier being that they lose their productivity because of the increased time needed to teach each student. Provider productivity measures need to be adjusted to accommodate for this extra time. Students and preceptors should have common course and personal goals that are compatible in order to provide the best learning experience. Academic institutions have access to online platforms to provide ongoing preceptor education with continuing education credit. This provision for preceptor education could be incorporated into the clinical site agreements between institutions and academe.

10. References


Disclosure: Mutually Beneficial Clinical Partnerships #D09HP28679 $1,081,736.00 2015 – 2018 is financed 100% by HRSA. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.”
The Development of Prosody in Students with English as an Additional Language or Dialect through Music

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Abstract

A number of students within Australian schools are recognised as having English as an additional language or dialect (EAL/D). The Australian Curriculum, Assessment and Reporting Authority (2014) outlines that students with EAL/D are seen to struggle with their English-speaking proficiency. With research recognising the prominence of music in everyday life, English becoming a global language, and the number of similarities between music and speech, this research explored a potential solution for students’ English-speaking proficiency by investigating the development of prosody in students with EAL/D through music. Using a single-subject experimental design (SSED), a total of six students with EAL/D from years one and two at a State School on the Gold Coast in Australia participated in an eight-week music intervention that drew upon principles of audiation from Gordon’s Music Learning Theory. Together, evidence from EAL/D Rating Scales and semi-structured interviews with staff revealed all students improved their prosody after their engagement with and participation in the music intervention but to varying degrees. This research not only contributes to the field of music education, but has the potential to inform national curriculum developments regarding the teaching of students with EAL/D. Recommendations and future research directions are provided.

1. Introduction

A challenging prospect for students learning English as an additional language or dialect (EAL/D) is the simultaneous learning of a new language, in Australia this is English, and curriculum content and skills in that new language [1]. All facets of schooling are carried out through the medium of speech (instruction, question, discussion, or statement) whereby those students with English as an additional language or dialect are seen not only to struggle academically, but also in multiple domains of their scholastic journey due to minimal English-speaking knowledge, skills, and vocabulary [6]. One approach to the development of students’ speech, in particular prosody, is through the use of music. The dimensions of melody (pitch) and rhythm are anticipated to assist in defining music; however, they are equally important in the act of speech development, more specifically prosody. Prosody can be considered one of the fundamentals of speech as it involves variations of pitch, stress, and rhythm for semantic purposes - to convey meaning [7]. Music and speech are both auditory forms of communication, and “are known to have similar communicative modes” whereby they both require the prosodic characteristics of pitch, rhythm, stress, melodic contour, and changes in intonation to effectively convey meaning [2] (p. 84). As such, this research drew upon principles of audiation from Gordon’s Music Learning Theory (GMLT) [12] to investigate its effects on the development of prosody in students with EAL/D due to processes being similar to language learning. Such teaching and learning focuses on the development of specific tonal and rhythmic patterns to develop the capacity to ‘hear’ the sound in one’s head when it may not be audibly present.

2. Methodology

The single-subject experimental design (SSED) was used in this research. Data was collected, analysed, and reported at an individual level, aligning with the educational belief that all students are individuals and learn at different paces due to a variety of factors [4]. Consequently, this methodology enabled students to act as their own control measure. The intervention implemented focused and drew upon the principles of audiation [12], and was delivered three times a week over the course of eight weeks, in which each lesson lasted 30 minutes in length. Three songs were used each week. The first week focussed on developing tonal vocabularies, with subsequent weeks using the same three songs, but switching focus to the rhythmic elements of each song, thus aligning with the teaching of audiation.
3.1 Recruitment and participants

This project employed criterion sampling. Six student participants were recruited from the same State School on the Gold Coast, and were either in Year 1 or 2 when the intervention commenced. All students had a sociocultural background in which English is not their mother tongue, and all students had been identified by specialists at the case site as possessing limited speaking capability in English.

3.2 Method

To investigate students’ level of prosody, data was collected pre- and post-intervention. Semi-structured interviews were conducted with the staff participant (Mrs X) to gain her perceptions on potential developments to student levels of prosody. Spontaneous speech samples from each student participant were taken pre- and post-intervention by asking an open-ended question that acted as a control measure. This enabled students to verbally relay a past experience in as much or little detail as they wanted and in a natural communicative setting without set criteria for them to fulfil.

One pre- and post-intervention spontaneous speech sample for each participant were analysed by independent raters within the fields of education and speech language pathology. They each used the ‘English as an additional language or dialect rating scales’ to assess native listeners’ perceptions of students’ level of prosody. The EAL/D Rating Scales score similarly to a Likert scale, with 1 being the lowest and prosody not resembling English speech patterns, and 5 being the highest whereby prosodic patterns when speaking English are native-like.

4. Results

Table 1 outlines the average scores calculated for each participant’s level of prosody pre- and post-intervention, and reveals that five of the six participants had improved their level of prosody post-intervention.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-</th>
<th>Post-</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abraham</td>
<td>2.82</td>
<td>3.17</td>
<td>+0.35</td>
</tr>
<tr>
<td>Alex</td>
<td>2.5</td>
<td>2.33</td>
<td>-0.17</td>
</tr>
<tr>
<td>Ashleigh</td>
<td>1.83</td>
<td>2.47</td>
<td>+0.64</td>
</tr>
<tr>
<td>Marcus</td>
<td>1.83</td>
<td>2.48</td>
<td>+0.65</td>
</tr>
<tr>
<td>Megan</td>
<td>2.66</td>
<td>3.33</td>
<td>+0.67</td>
</tr>
<tr>
<td>Michael</td>
<td>2.48</td>
<td>4.13</td>
<td>+1.65</td>
</tr>
</tbody>
</table>

Prior to the intervention, the majority of student participants demonstrated minimal to no prosodic characteristics within their speech. As they may not have communicated extensively and/or their speech was filled with a number of pauses and wait time, when students did speak, their verbal behaviours were described as monotonous with little, if any, pitch inflection(s) or stress emphasis. These participants did not exhibit prosodic behaviours within their speech in the English language that could be classified as similar or the same as a native English speaker. Abraham, however, initially displayed higher levels of prosody in the English language than the other participants. A feasible explanation for Abraham’s result could be due to him living in Australia longer than any of the other student participants, in which being exposed to and interacting in the English language could have influenced his level of prosody in comparison to other student participants prior to his participation in the music intervention. These perceptions by Mrs X are reflected in the average scores provided by the six independent raters (Table 1).

5. Discussion

All students demonstrated an increase in their level of prosody after participating in the eight-week intervention. Songs authentically assemble linguistic and musical information, and contain the same elements found within oral stories, yet conveyed by a musical vehicle, drawing on the need for pitch, rhythm, stress, melodic contours and intonation changes to effectively convey the intended meaning [2, 3]. The use of song as the pedagogical tool for the intervention in this research was effective in assisting in the development of prosody. The results obtained from this study are congruent with the findings of Phillips [9], who found that songs assist in practising “the sounds, rhythms and stress patterns of English” (p. 108). Saricoban and Metin [10] elaborate on this by stating that the “prosodic features of the language such as stress, rhythm [and] intonation are presented through song” (para. 3). The alternating focus on tone and rhythm throughout each week of the
intervention in this study proved effective as it rendered the level of prosody in children’s spoken English. Additionally, students were able to focus on intonation that is deemed simpler to follow and learn through song than traditional approaches to language learning [2].

After participating in the eight-week music intervention, all students demonstrated improvements to varying degrees in their level of prosody when speaking in English. This supports the notion that even after a short period of time, the melodic contours and stress found in songs can have positive impact on the linguistic domain. Whilst all students demonstrated improvements to their level of prosody, the intervention was evidenced as having a greater effect on the student participant (Michael) who has a pitch-accented language. Michael’s level of prosody in English pre-intervention was limited, however, post-intervention evidenced Michael’s level of prosody in English as the most improved out of all participants. Language comes to exist through the combination of sets of sounds, with each culture selecting its own distinct set of sounds [13], and the use of sounds defining each language as tonal or atonal. Tonal languages make use of melodic contour, in which Han, Sundararajan, Bowling, Lake, and Purves [5] outline that there is alignment between the tonal characteristics of a culture’s music and spoken language. Consequently, these significant results for Michael suggest that this particular approach of using song to accelerate the acquisition of the English spoken language resonated more with him than other student participants due to his awareness of pitch and rhythm for communication in his native language.

This study drew upon principles of audiation [12], and enhanced students’ listening skills through learning and building their tonal and rhythmic vocabularies. Students learned to hear ‘sounds’ in their heads, which were then applied to their singing and speech in English. Sharpe [11] supports this by outlining that songs provide ample opportunities for structures and patterns in the foreign language to be gradually internalised. This connects with the work of Millington [8], and more recently with Garcia Conesa and Juan Rubio [2] who state “songs can also help to improve the listening skills because they provide students with practice listening to different forms of intonation and rhythm” (p. 90). Furthermore, they highlight that the natural rhythm and recurring beat evident within songs is “similar to the stress patterns of spoken English”, highlighting the effectiveness of using song(s) to assist in practising rhythm and stress for English language learning [2] (p. 90). Through the use of song in this research, it provided participants with the opportunity to develop and build upon their tonal and rhythmic vocabularies in an enjoyable manner that better enabled them to hear such sounds in their head and thus develop their level of prosody in spoken English.

6. Conclusions

Although no patterns could be identified in regards to student age, and students’ duration in the country and their post-intervention results, it is suggested that the musical approach does yield greater impact with those who have a pitch accented or tonal native language as a result of their capacity and need to already be aware of the subtle changes in pitch and rhythm for meaning. The data presented has highlighted the positive effects, to varying levels, the intervention had on all students’ level of prosody. It is anticipated that further research will deliver the full potential that music has to offer in the development of prosody in students with English as an additional language or dialect.

7. References


Session 30: Learning / Teaching Methodologies and Assessment

Title: A Field Guide for Validation of Program Outcomes through Rubric Development: An important Part of Technical Education Courses Accreditation - NBA Tier II
(Authors: Chanpreet Kaur, Rachna Manchanda, Mohit Srivastva, Gurpreet Kaur)

Title: Teaching for Reconciliation in Australia
(Authors: Sarah Booth, Bill Allen)

Title: Flipping the English for Scientific Communication Classroom with Peer Instruction and Just-in-time Teaching
(Authors: Di Zou, Haoran Xie, Fu Lee Wang, Tak-Lam Wong)
A Field Guide for Validation of Program Outcomes through Rubric Development: An Important Part of Technical Education Courses Accreditation- NBA Tier II

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Abstract

Program outcomes (PO) are defined for each education program. The purpose of designing the outcomes will help the technical teaching organization to set their goals to meet out the vision and mission of the department followed by that of the organization. Rubrics are set of protocols written in a standard format. In a Rubric detailed information is collected for every course during the session, this data can be combined for each semester to achieve the set targets that is program outcomes. According to the NBA (National Board of Accreditation) Tier II, institutes have to predefine the program education objectives (PEOs) and POs for every course in each session. To meet the POs each course has set course objectives and course outcomes (COs). Attainment of CO will exhibit the progression level of program outcomes. More the attainment of COs more be the validation of POs as they are interfold. Performance of each individual in the class will be the rubric data for each PO. In this paper, certain attainment parameters have been prepared to analyze the performance of each student, which further helps to provide scale for PO achievement.

1. Introduction

Indian higher education system is the third largest system in the world. The spirit of continuous improvement is a prerequisite for quality initiative and educational institutions have to work for continuous growth and to do regular assessment. Accreditation is a process of quality assurance and improvement, whereby a programme in an institution is critically appraised to verify that the institution or the programme continues to meet and exceed the norms and standards prescribed by the appropriate designated authorities [1].

There are two Central bodies involved in accreditation of institutions; the National Accreditation Assessment Council (NAAC) and the National Board of Accreditation Board (NBA). NAAC was setup by UGC for universities and NBA was constituted under AICTE for technical courses. The NBA has two-tier system of accreditation for Diploma / Undergraduate (UG) / Postgraduate (PG) Engineering Programmes and documented as TIER-I and TIER-II. The TIER-I document has been designed for engineering programmes offered by autonomous institutions and university, while the TIER-II document is for the non-autonomous institutions affiliated to a university [1]. TIER-I and TIER-II documents have the same set of accreditation criteria however in TIER-I document, more weight age have been given to the criteria which are based on outcome parameters, whereas in the TIER-II document, the criteria which are output-based have given more weight age [1, 2]. In this paper we are defining certain parameters for the rubrics of the programme outcomes (POs) or graduate attributes (GA) to evaluate learning of undergraduate Engineering course students under NBA TIER-II scheme [3].

According to the NBA Tier II for technical education institutes for every course, Program education objectives (PEOs) and Program Outcomes (POs) are predefined for every session. To meet the POs each course has set Course Objectives and Course Outcomes (COs). There are total 12 POs namely; 1. Engineering knowledge; 2. Problem analysis; 3. Design/development of solutions; 4. Conduct investigations of complex problems; 5. Modern tool usage; 6. The engineer and society; 7. Environment and sustainability; 8. Ethics; 9. Individual and team work; 10. Communication; 11. Project management and finance; 12. Life-long learning suggested in Accreditation TIER-II document. Attainment of Course Outcome will show the progress level of Program Outcomes. More the attainment of COs more is the validation of POs as they are interlinked. So to validate POs and then COs particular Rubric are defined [4, 5].

2. Rubric Form

Rubrics are set of rules written in a standard format, this rubric will be filled by the Class Mentor for each course on the basis of the answer of questions asked from the course contents. These
questions fulfill the parameters of the rubrics. Data collected for whole class from rubric will validate each PO respectively. A sample sheet of rubric form is shown in Table 1. To assess the attainment of rubrics number of questions (normally four) has been selected in such a manner so that each of them relates with part of a particular rubric.

### Table 1. Rubric Form for PO1

<table>
<thead>
<tr>
<th>College Name</th>
<th>Department of ECE</th>
<th>RUBRIC FORM</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class : B.Tech (ECE)</td>
<td>Semester: 6th</td>
<td>GroupA</td>
<td>Name of Student: XYZ</td>
</tr>
<tr>
<td>University Roll no: 123</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodicity: Once in Every Semester</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Grading: Excellent-32.5-40 Marks, Very Good-22.5-30 Marks, Good-12.5-20 Marks, Average-0-10 Marks)

#### SUBJECTS

<table>
<thead>
<tr>
<th>S. No</th>
<th>Feedback Parameters</th>
<th>Name of Mentor</th>
<th>Name of Mentor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge of mathematics and science to the Student</td>
<td>BTCS-401</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Understanding of student over engineering fundamentals</td>
<td>BTEC-601</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Student’s approach for any problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Expected solution of a problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL out of 40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The four parameters in the attainment sheet as shown in sample have been designed to assess the attainment of PO-1, i.e., “Engineering knowledge”. Each individual of these parameters assesses individually the part of the student’s learning over engineering knowledge. The assessment is based on the four parameters as follows:

a) “Knowledge of mathematics and science to the students”: provides the student’s ability to solve the equation or able to know the basic science behind any subject topic/question.

b) “Understanding of student over engineering fundamentals”: represents the students’ ability to link the mathematics or science with engineering problems.

c) “Students approach for any problem”: judge the formula/concept/approach applied by student for a problem.

d) “Expected solution of a problem”: it provides the student ability to think the outcome of the problem and their solving procedure.

### 3. Evaluation Criteria

Evaluation Criteria is divided into four grading - Excellent, Very Good, Good and Average. Ranges of Grading are set accordingly to our requirements as per the curriculum. Excellent has range from 32.5-40 Marks, Very Good has range from 22.5-30 Marks, Good has range from 12.5-20 Marks, and Average has range from 0-10 Marks. Figure 1 Shows Grading, Marks Obtained and Mode of Assessment interrelated.

![Evaluation Criteria for PO1](image_url)

### 4. Implementation of Rubric Tool

Total 48 rubric parameters, four for each 12 graduate attributes has been set to assess the learning outcomes of the students. The attributes are set in such a manner so that the answer of any question asked as per the CO of the subject will assess the learning of students in same subject. Quiz, surprise test and or class test are the modes for the assessment of student’s attainment level. In all the above-mentioned assessment process number of subject questions to analyze their impact for mathematical knowledge, subject/topic definition, process, formulae, input-output relationship are to be asked for PO-1. Similarly for other 11 POs, each mentor will prepare sixteen questions based upon four points and will evaluate each student to fill the rubric form for PO1.

Table 2 depicts the real rubric data collected of one student of fourth semester through mentor and is having four attributes to assess students learning for PO-1. Same steps will be repeated to know the rubric data of other eleven POs. Data collected from all the rubrics can be consolidated to know the program outcome.

Figure 1. Evaluation criteria for PO1
Table 2. Rubric Form For PO1 of Sixth Semester

<table>
<thead>
<tr>
<th>S.N</th>
<th>Feedback Parameters</th>
<th>Name of Mentor: A</th>
<th>Name of Mentor: B</th>
<th>Name of Mentor: C</th>
<th>Name of Mentor: D</th>
<th>Name of Mentor: E</th>
<th>Name of Mentor: F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge of mathematics and science to the Student</td>
<td>10</td>
<td>7.5</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>7.5</td>
</tr>
<tr>
<td>2</td>
<td>Understanding of student over engineering fundamentals</td>
<td>7.5</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>7.5</td>
</tr>
<tr>
<td>3</td>
<td>Student’s approach for any problem</td>
<td>5</td>
<td>10</td>
<td>7.5</td>
<td>5</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>Expected solution of a problem</td>
<td>5</td>
<td>7.5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>TOTAL out of 40</td>
<td>27.5</td>
<td>35</td>
<td>27.5</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

5. Rubric Analysis

Grading is done based upon the student performance judged by the mentor from the rubric form. Figure 2 shows the point wise analysis for PO1 of one Student. For WCS point 1 scored marks 10 as students has correctly answered 4 questions, for point 2 the scores marks are 7.5. Similarly for point 3 and 4 the marks obtained are 5. Same analyses for all other subjects are done. The bar graph also represents that out of above-mentioned 4 rubric parameters, students understanding on science and mathematics are very good and understanding of engineering fundamentals is good.

By accumulating marks obtained for each point from each subject overall marks obtained for particular subject is obtained. Figure 3 shows the overall attained marks of the PO1 for 6th semester subjects. Same forms are repeated for whole class and data is gathered to validate all the POs.

Figure 2. Point Wise Marks obtained of PO1 for all Subjects

Figure 3. Grading of PO1 for 1 Student in all Subjects

After obtaining the rubrics for PO1 of whole class, distribution of level attained for WCS is shown in Figure 4. Among the class of 60, 30 students have attained excellent level. 20 students have attained the very good level and 5 and 5 students have attained good and average level respectively.

PO wise analysis for WCS for whole class is shown in Figure 5. PO 4 and PO11 have got maximum validity by scoring 32.5 marks leads to excellent level. PO1, PO2, PO3, PO5, PO6, PO7, PO10 and PO12 have got values for very good level. Lastly PO 8 and PO9 scores the good level.

Figure 4. Validation of PO1 for the whole class for WCS
It represents validation of PO, which leads to PO attainment. PO attainment will notify the whole scenario of a graduate for ECE.

Figure 5. Validation of PO through Rubrics for WCS

6. Conclusion

Engineering courses are outcome based; course outcome, program educational objectives, and program outcomes are the parameters to assess the outcome. NBA Tier II document is used to assess the quality of the course and there after program. Leaning of the course is assessed through concept over subject. Attainment of course outcome will exhibit the progression level of program outcomes. This paper shows the rubric protocols for PO-1and methodology to assess the student’s attainment level. Total 48 rubric parameters are designed for 12 POs and then after the students attainment level for a class over one subject has been calculated and represented by bar graph. The attainment graph plotted on the basis of answer of the questions asked per subject prepared as per the provided rubric parameter clearly exposed student’s class learning over a particular subject for as per graduate attributes. At the last we can say: “Proficient Rubric validation escorts to skillful Graduate.”

7. References


Teaching for Reconciliation in Australia

Sarah Booth, Bill Allen
Edith Cowan University, Western Australia

Abstract

In Australia, there are two dimensions to Indigenous education. The first and most widely discussed, is that of teaching Indigenous children and associated issues. The second, is the teaching of Indigenous histories and cultures to all Australian children. This study focuses on the teaching of Indigenous histories and cultures to non-Indigenous students by non-Indigenous teachers with a particular concern of education for Reconciliation. It explores how, and to what extent, schools are teaching Indigenous cultures and histories and the conceptualisations of Reconciliation. From this study, there was real confusion in the two schools with regard to what is taught; how it is taught, who has responsibility and what the nature of education for Reconciliation is about. However, the differences between the two schools suggest strongly that school culture, emanating from the Principal and the school’s foundation impact on the received curriculum which is not always as the entitled curriculum suggests or the intended curriculum lays out.

1. Introduction

Evidence from State curricula suggest that very little attention was paid to teaching Western Australian secondary students about Indigenous histories and cultures prior to 1980 [7]. This reflected a lack of knowledge within the wider Australian community about Indigenous histories and cultures; leaving negative perceptions of Indigenous Australians unchallenged [14][15].

There has however, been extensive research into engaging and teaching Indigenous students who fall two and a third years behind their non-Indigenous counterparts [2]. This was a focus of Closing the Gap, a government initiative to tackle poverty within Indigenous communities [1]. Reconciliation however, involves more than just educating Indigenous Australians, it involves a mutual understanding.

In Australia, there are ongoing discussions to improve the relationship between Indigenous and non-Indigenous Australians to promote reconciliation [12][13]. The education system is where reform can take place, however, there are many obstacles preventing this relationship from developing.

Throughout Australia’s history there was an unevenness in the way in which Aboriginal perspectives was taught. The focus was on the European explorers and Indigenous people only featured as threats or helpers. There was little or no discussion on Indigenous culture or perspectives. This has been gradually changing, the most recent involving the implementation of reconciliation into the Australian Professional Standards for Teaching, which all teachers must adhere to.

Currently, there are two dimensions to teaching and learning about Indigenous cultures and histories. The first, which is more widespread in the available literature, focuses on improving Indigenous educational outcomes. The second, involves teaching all Australians about Indigenous cultures and histories regardless of their background. Both dimensions are recognised by the Melbourne Declaration which outlines the education goals for young Australians and as such, is the Curriculum of Entitlement. The Curriculum of Intent is the Australian Curriculum and the subsequent state variations of it as it includes what is to be taught in classrooms.

However, teaching for reconciliation has many challenges and obstructions. One of the biggest barriers is systemic racism, which is dangerous because it often goes unseen by the dominant culture. Systemic racism favours the dominant culture’s instruction methods [9] therefore, disadvantaging minority groups such as Indigenous Australians. Despite the constant iteration that Indigenous perspectives be taught to all students, there is still little understanding of how this is being implemented in schools, particularly with few or no Indigenous students.

This study focuses on two case studies which explore the teaching and learning of Indigenous cultures and histories in two high schools in Western Australia. Data was collected from different tiers within the school including: the principal, teachers and a student focus group. By examining the different tiers of the school system, we are better able to understand how a school prioritises the teaching and learning of Indigenous cultures and histories. As such, a symbolic interactionist view
point worked best for exploring the different perspectives. This understanding of the world is based on how our experiences shape how we respond to objects, people and events [5]. In the context of this study, how people interact with the teaching of Indigenous cultures and histories may have been impacted by lived experiences or new knowledge. It also incorporates the student perspective and how they interact with Indigenous people and the understanding of Indigenous cultures and histories.

2. Reconciliation

Reconciliation as described by Reconciliation Australia is a process of building mutual and respectful relationships between Indigenous and other Australians by eliminating ‘gaps’ in education, health and wellbeing, and addressing social disadvantages based on false beliefs and stereotypes [13]. The Australian government has been working to address these issues by developing a Closing the Gap campaign and the greater inclusion of Indigenous cultures and histories in the Australian Curriculum. However, this is a complicated issue with many factors which impact not only how non-Indigenous people see Indigenous Australians but how Indigenous Australian’s see themselves and how they see non-Indigenous Australians [16]. There are psychological factors along with systemic factors which stall the process of reconciliation.

The psychological factors comprise of stereotypes, false beliefs and prejudices. The disadvantage Indigenous people face consist of three different categories all involving violence against them. These include, direct violence, structural violence which impacts opportunities in life, and cultural violence “when the nation’s attitudes and stereotypes ignore, justify and normalise such inequalities or blame them on the victims” [3] (p.201). Negative stereotypes of Indigenous people exist today despite evidence to contradict them. These active stereotypes are difficult to change because they have become part of the cultural knowledge. Even when someone from the minority group acts in a non-stereotypical way the stereotype persists because they are labeled an exception to the rule. Stereotypes are also more likely to be maintained when information that is consistent with cultural stereotype is circulated in everyday discourse and more likely to be to be transformed when information that is inconsistent with the stereotype is shared” [3] (p.204). This puts great responsibility on schools to assist in challenging these stereotypes. Balvin also states that “The onus to facilitate reconciliation should be with the ‘settlers’ who have caused the upheaval in Indigenous peoples’ lives, yet it is often Indigenous Australians who drive this movement” [3] (p.213). Although it can be argued that non-indigenous Australian’s are not doing enough to combat racism, there is evidence of a desire for change. This is based on the findings in this study which indicates the relationship between Indigenous and non-Indigenous Australian’s are of high importance for Australia. Also, there is a strong belief that all Australians should know about Indigenous culture and history, and lastly, the sharedness of Australian values by the two groups [3] (p.214).

How to address this imbalance of Indigenous disadvantage is an issue which many are unsure of. This is partly due to a lack of knowledge of the role of stereotypes, false beliefs and prejudices. The White privilege and colour blindness plays and how these two things uphold systemic racism.

3. White Privilege

White privilege, which here refers to the Anglo-Saxon majority, often goes unexamined in Australia because white values and attitudes form the basis of mainstream views of “race and consequently shape the social interactions whites have with other whites and people of color in a variety of contexts” [4] (p.3). The cultural majority's ways and customs are therefore seen as 'normal' and every other culture is measured against it [4].

The danger of this ‘invisible’ and unexamined view of society is that whites claim their stereotypes and prejudices are not racial and that disadvantaged minorities are there by individual choice [6]. However, these attitudes can be changed through increasing diversity awareness which improves white’s ability to explain how race plays a role in their lives.

4. Two dimensions

The curriculum of entitlement and the intended curriculum have been developed in the last two decades to enable all students to have an inclusive education. The school and the classroom are where both are implemented but it may well be that it is school culture which dictates the priorities of the school regarding the teaching and learning of Indigenous histories and cultures. Therefore, although these documents have been created with the best intentions, they must be interpreted by the school and teacher before being received by their students. Therefore, the received curriculum is the school and teacher’s interpretation of the curriculum of entitlement and intent.

The three levels of curriculum have set to address the inclusion of Indigenous cultures and histories through the curriculum of entitlement, intent and the received curriculum. The curriculum of entitlement is that which all young Australians have a right to. In furthering reconciliation, the Melbourne Declarations states that all young people should “Understand and acknowledge the value of Indigenous cultures and
possess the knowledge, skills and understanding to contribute to, and benefit from, reconciliation between Indigenous and non-Indigenous Australians [11]. The curriculum of intent is the prescribed Australian Curriculum and West Australian Curriculum. The Indigenous component, has taken the form of one of three cross-curriculum priorities, which are to be embedded across all learning areas and all years. It is the teacher who decides how it is to be implemented. In subjects such as Humanities and Social Sciences there are a few prescribed units which include Indigenous perspectives and elective units. The received curriculum is what the students actually receive. This is the result of school priorities and individual teacher choice in how they embed Indigenous cultures and histories.

This involves the teacher’s choice in their elective units and the extent to which they teach Indigenous cultures and histories. What this study aims to do is gain an insight into the received curriculum at two different schools. The curriculum of entitlement and intent is worth nothing if it is not being interpreted as it has been intended for the students to receive.

5. Methodology

To understand the factors which affect the teaching and learning of Indigenous cultures and histories, a multiple case study methodology was necessary. Each case included interviews by the principal, teachers and a student focus group. By examining a cross-section of the school, a variety of perspectives on the factors which affect the teaching and learning of Indigenous cultures and histories could be gained.

The focus of this study was schools which had a low number of Indigenous students as this would impact the presence or lack of community pressure on the teaching and learning of Indigenous cultures and histories. Much of the focus of teaching Indigenous cultures and histories is to better teach Indigenous students, however, little is known on priority given to this area at schools with few or no Indigenous students.

6. Findings and discussion

To successfully teach for reconciliation all students regardless of their background must have an understanding Indigenous cultures and histories. As there is already a plethora of research on the teaching of Indigenous students, this study focused on the teaching of non-Indigenous students about Indigenous cultures and histories. Therefore, a criterion for schools selected were the limited number of Indigenous students below the national population of 3%. The two schools in this study responded very differently to the teaching of this topic. This was reflected in the school culture and how Indigenous perspectives was prioritised. This study was still ongoing at the time of this paper and therefore, the findings are still being developed. However, there are some interesting themes emerging from the interviews. All the participants believed it was important to prioritise Indigenous perspectives, however, it was widely acknowledged that more could be done.

This was particularly evident at a school which did not celebrate NAIDOC (National Aboriginal and Islander Day Observance Committee) Week, though it was mentioned at assembly. One reason was the very low numbers of Indigenous students and the focus was instead on the multicultural aspect of the school. This ties in with the widespread belief that Indigenous cultures and histories are primarily for Indigenous people. There was however, acknowledgment that it should become a priority.

In the past, this school had had a connection with an Aboriginal community, however, once the organiser left the school, the exchange program stopped. No one else stepped up to take on the role or develop a new role. This was likely due to the heavy workload the teachers interviewed expressed. As a result, they were reluctant to create more work outside of their teaching workload. Although all those interviewed would be happy to implement more programs focused on Indigenous cultures and histories there was no one to champion it.

This differed from the second school in the case study, where the Principal actively promoted the implementing of Indigenous cultures and histories throughout the school and in all subject areas. This school had a Reconciliation Action Plan which is designed to provide the school with a structure to improve how they contribute to reconciliation.

Although the staff interviewed were unsure of its contents it was clear that many aspects of it had been incorporated into the school and their classrooms. The culture amongst staff was one where they looked for areas to embed it. This was both staff in Humanities and Social Sciences and English. During an interview, another staff member was trying to contact a local Indigenous radio host to come and talk to their class. There was also a recent effort to acknowledge the few Indigenous students they did have by involving them in assemblies including being part of Welcome to Country which acknowledges the traditional owners of the land.

Both schools had issues around the crowded curriculum and acknowledged that in the past Indigenous cultures and histories were left out due of a lack of time. These schools also noted that reconciliation was not taught explicitly but that reconciliation was acknowledged through the teaching of Indigenous cultures and histories.
7. Conclusion

Reconciliation is an ongoing process which needs contributions from both Indigenous and non-Indigenous Australians to continue to progress. Education is a powerful player in this process and therefore, to understand how schools are teaching Indigenous perspectives could be useful in the progress of reconciliation. The priority schools give reconciliation seems dependent on leadership from the principal or a champion to drive it. However, with the increasing demands on teacher’s time, it appears that there is little incentive for those that were interviewed to step forward for this role.

One factor which arose from this study from everyone who participated, was the importance of teaching for reconciliation. Yet, in order to do so, teachers need to be supported and encouraged and reminded that teaching Indigenous cultures and histories is important for all students.

8. References


Flipping the English for Scientific Communication Classroom with Peer Instruction and Just-in-time Teaching

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\textsuperscript{1}The Education University of Hong Kong, Hong Kong
\textsuperscript{2}Caritas Institute of Higher Education, Hong Kong

Abstract

The present paper reports on a work in progress project that will flip a course of English for specific purposes with peer instruction and just-in-time teaching. Results concerning how this project will be conducted, what comments Hong Kong university students and teachers have on the flipped learning mode, and to what extent such a flipped classroom may facilitate students’ language enhancement and critical thinking skills will be presented. Possible suggestions for the implementation of peer instruction and just-in-time teaching in language classrooms will also be proposed.

1. Introduction

Peer instruction (PI) is an interactive approach to learning and teaching popularized by [4]. It provides students with rich opportunities to learn from each other through collaborative classroom activities like group discussions and negotiations. Just-in-time teaching (JiTT) is an ideal complement to PI as it creates a feedback loop between students’ online learning at home and interactions in class [7]. Through assigning online learning tasks for students to complete before class and monitoring their progress, JiTT helps teachers tailor the PI questions and fine-tune the classroom activities to better meet students’ needs. PI and JiTT have been widely employed in various subjects such as physics, biology and computer science ever since they were proposed in the late 1990s, but rarely in language education. This is surprising as both approaches to learning and teaching are student-centered and collaborative in nature, and effective language learning involves group work to a large extent, so applying PI and JiTT to language classrooms is likely to be very effective for language enhancement. This is the initial motivation of this project. Also, many universities set implementation of teaching methods that actively involve and support students in the enhancement of their confidence, motivation, communication skills and problem solving abilities as one of their key strategies. In response to these calls, the proposed project aims to examine how to implement peer instruction and just-in-time teaching to flip the classroom of a discipline-specific requirement subject: English for Scientific Communication.

2. Theoretical framework

Having been adopted in various disciplines and institutions around the globe, PI and JiTT are noted by a large number of scholars as being more effective than traditional teaching methods [7] [1] [10] [6] [4] [5]. Specifically, Mazur indicated that it is more beneficial to teach by questioning than by telling, so PI and JiTT, a main part of which being various guided questions that intend to promote students’ critical thinking on the course materials, seem to be conducive to learning. Also, as developed skills of conceptual reasoning, problem solving and critical thinking have been observed in students upon implementing PI in both Crouch and Mazur’s and Butchart, Handfield and Restall’s studies, the peer instruction flipped classroom proposed here appears to be able to support students in the development of various skills [5].

With discussions and negotiations on the lecture notes playing a major role in it, a PI classroom promotes very effective language learning as facilitative effects of discussions and negotiations on the development of various language skills have been highlighted by many researchers.

Moreover, PI tends to promote a high retention of learning, with the bottom three levels (discussion, practice doing and teach others) all being involved. The learning pyramid was created by the National Training Laboratories in the early 1960s to illustrate the percentage of learner retention induced by diverse approaches. According to this model, students can retain approximately 90% of what they learn when they teach someone else, 75% of what they learn when they practice what they learned, and 50% of what they learn when engaged in a group discussion. That is, active involvement and collaborative interactions increase students’ retention rate dramatically.
These hypotheses are in accordance with the seven principles for good practice in undergraduate education identified by [2] Checking against the seven principles, PI seems to meet all criteria for effective teaching. It emphasizes active participation in class through discussions on questions requiring comprehension of key knowledge points, and involves frequent student-faculty contact. A PI flipped classroom improves thinking and deepens understanding as its learning style is collaborative, interactive and social, not competitive and isolated. Students in such a classroom are not expected to learn through memorizing pre-packaged information and spitting out answers; instead, they are encouraged to discuss what they are learning, write reflectively about it and relate it to their daily lives. Complemented by JiTT, the proposed PI flipped classroom also enables teachers to give students prompt and frequent feedback on their learning progress, and then decide whether they may proceed to the next learning point based on students’ performance. With high expectations on them, students are more willing to work harder, think deeper and more critically. These can further push them to make good use of their talents and adopt more effective strategies for learning. As summarized by [4], using JiTT in combination with PI is advantageous in that it personalizes the learning experience. With the help of online platforms and e-learning systems, teachers are better connected with students, being able to monitor their learning progress, address their difficulties individually and deepen their understanding.

3. Objectives of the project

This project has seven main objectives as follows:
1) To implement PI and JiTT to the teaching of a discipline-specific requirement subject: English for Scientific Communication.
2) To flip the classroom by moving language input and information transfer out of class and integrating more knowledge application and language practices into the class.
3) To provide adequate opportunities for students to critically think through and discuss the input, and practice applying it in their output.
4) To engage students in their own learning and increase their sense of belonging to the classroom.
5) To promote students’ language enhancement, improve their communication skills and boost their confidence in speaking.
6) To construct a flipped learning model for the course and develop a list of suggestions for teachers to implement PI and JiTT in language classrooms.
7) To further develop the materials of the course, adapting them to the flipped mode of teaching and making them more conducive to students’ active learning of the desired knowledge and skills.

4. Acknowledgement

The research described in this paper was fully supported by the Start-Up Research Grant (RG 37/2016-2017R), the Internal Research Grant (RG 66/2016-2017) of The Education University of Hong Kong, and a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (UGC/FDS11/E03/16).

5. References

Session 31: Global Issues in Education and Research

Title: Academic Advisors: What are their Experiences Advising International Partnership Students?  
(Author: Kathryn Garcia)

Title: Refugees, Coding and Mindfulness: The New Global Issues That Teachers Are Choosing to Research in Their Master of Education Inquiry Projects  
(Authors: Susan Barber)

Title: Critical Pedagogy as an Application of Active Learning  
(Authors: Sirous Tabrizi, Glenn Rideout)
Academic Advisors: What are their Experiences Advising International Partnership Students?

Kathryn Garcia

University of the Fraser Valley, Canada

Abstract

Lack of government funding for Canadian post-secondary institutions is pressuring universities to actively seek out revenue generating options. One of these options, which is enthusiastically endorsed by both levels of government is to develop international partnership agreements and recruit students from these partnerships. Currently there is a lack of literature on how international partnership agreements impact institutions, and more specifically how international partnership students impact academic advising units within the institution.

The purpose of this research study was to explore the University of the Fraser Valley’s (UFV) academic advisor’s experiences when advising international partnership students and understand the impact these students have on UFV’s advising services. Interviews were conducted with seven academic advisors at UFV. The interviews were audio-recorded, transcribed, then organized into patterns and categories and cluster coded into themes based on the research questions. The two overarching themes emerged: Benefits and Obstacles. While findings revealed that various benefits exist and articulation misalignments are being addressed, subtle problems still occur for advisors such as communication gaps and language and culture barriers for international partnership students; several recommendations were put forward.

References


Refugees, Coding and Mindfulness: The New Global Issues That Teachers Are Choosing to Research in Their Master of Education Inquiry Projects

Susan Barber
Simon Fraser University, Canada

Abstract

This paper focuses on the rapidly changing interests of in-service teachers in the Vancouver area of B.C., Canada, who return to university to earn their Masters of Education (MEd) degrees. Designed to offer theoretical frameworks for their practical concerns, this MEd program encourages students to do qualitative research on skills and knowledge that they can apply in their schools, classrooms and/or individual students. Given a choice, many teachers seize upon recent issues that have appeared in their realm that cause them to feel unprepared, even teachers with twenty years’ experience. Key examples are: addressing the complex needs of refugees, taking on coding in elementary classrooms, or finding balance between the heavy demands of teaching and personal well-being. This paper identifies the significance of these three newer inquiry projects and links them to the personal and professional values teachers fall back on in order to situate themselves in best practices.

1. Introduction

A new Syrian refugee arrived in my class. My principal informed me that the girl had seen two of her relatives shot and burned in front of her. Thinking I might be able to help ease her PTSD, I went to introduce myself to her family. I found out that for two years, the mother had never left her small tent in the refugee camp, and in Canada, she has not left their house in six months (teacher in MEd program, 2016).

These stories are met with shocked silence in university classrooms when in-service teachers share issues they have in their own classrooms. Few Canadian teachers have the knowledge or experience to respond to students in these situations, unless they also have some counseling background. Yet, across Canada, new refugees are being settled into schools and communities in greater numbers, and they desperately need to begin their post-immigration lives. Schools are their “go-to” place and teachers are life-lines to their new world [1]. Schools attempt to provide resources to help these youth learn how to function socio-culturally as well as in the academic environment so as to find the road to success in our very different, and diverse, society.

Dealing with refugees is but one of the riveting topics teachers in Masters of Education programs seize upon when given a choice of subjects for their yearlong inquiry projects. While many of these MEd students are new teachers who are searching for important ways to deepen their knowledge of assessment, increase student engagement, advance literacy, and implement socio-emotional skills, it is often the more experienced teachers who have been in the schools for 20+ years who are most able to mark how things are changing, and rapidly. With their strong sense of the integration of theory and practice, they are well positioned to pick up on the subtle shifts in schools that indicate a larger change is in the offing. Overall, MEd students are encouraged to do something personally meaningful and test scholarly theories in their specific classrooms through their particular lenses.

Teacher inquiry is defined as a means to understanding one’s professional practice within a specific teaching world through a systematic examination of ideas and actions, and then reflecting on how that practice can be improved [2][3][4]. In the past, practitioner research may have been partly motivated by a desire to counter the politics behind the efforts to standardize practice or make teachers accountable for the success or failure of their students [5], but today in British Columbia, the Ministry of Education [6] has recently implemented the New Curriculum that puts its faith in teachers’ ability to advance three core competencies: communication, creative and critical thinking, and personal and social responsibility. Teachers are now given more freedom to integrate subjects while creating more holistic, hands-on and practical experiences for students. This reinforces the need for examining practice all the more, and, as teachers experiment with New Curriculum methods and the impact on their students’ learning, the university, in turn, benefits greatly from being informed of their results.

As an instructor in this MEd program, I have been honoured to work with committed and highly innovative teachers, and admit to learning much more from them than can be expressed. In the past, there may have been a sense of privileging university-generated knowledge over practitioner
research, but today more than ever the relationship is balanced, reciprocal and highly cooperative [7]. This is especially true when veteran teachers become aware of situations they feel inadequate to handle and pursue new knowledge in their graduate work. When in 2016 I noted a change in some of the experienced teachers’ inquiry topics, I was determined to trace the reasons, and perhaps make some broader connections.

The focus of this paper is to examine three key areas in which teachers today feel compelled to prepare themselves in order to adapt to our rapidly changing educational landscape. First, many teachers feel inadequate to deal with the increase of refugees in their classrooms in ways that are different from teaching English Language Learners (ELLs). Secondly, coding has arrived in BC schools, and questions have been raised about the usefulness of teaching these skills in primary classes, and why they might have the potential to overcome equity barriers and advance social justice in the 21st century. Lastly, and perhaps as a side effect of the former two, is the problem of teacher burnout. Across all cohorts in the last three years, 100% of my students have mentioned their struggle to find the time and energy to live what they would deem a quality life. The selflessness and caring that goes with the job is also directly related to emotional and intellectual exhaustion. All teachers are intent on finding ways to live “reasonable lives”; that is, to raise their families, participate in healthy lifestyles, and replenish their spirits while working tenable hours. To this end, many choose to do their inquiry on mindfulness in the hopes of finding more balance and personal well-being.

In the following sections I will focus individually on each of these topics.

2. Refugees in our Classrooms

In 2016, Canada added 1% to the national population by admitting over 300,000 permanent residents, with 39,000 refugees from Syria alone from Nov. 2015-Feb. 2016 [8][9]. The main source countries in 2014 were Iraq, Eritrea, Iran, the Congo, Somalia, Syria and Afghanistan, where most of the refugees experienced different forms of warfare or oppression [10][11]. In a Swedish study done on the mental health of resettled Iraqi refugees in Sweden, the most common issues were post-traumatic stress disorder (PTSD), depression and anxiety [12]. Exposure to severe pre-immigration trauma such as torture explains a higher prevalence of mental health disorders among refugees, but importantly, resettlement stress also contributes to its persistence and even increase. What this means for teachers in Canada is that they need to understand that once refugees arrive, the issues do not disappear. In a study done in 2001 in Toronto with Tamils refugees, researchers found that in their new homes, refugee parents experienced great stress due to social and economic factors, threats, discrimination, loss of status, as well as feelings of alienation [13].

Therefore, regarding the new refugee students themselves, teachers need to be aware of their specific psychosocial needs due to PTSD and displacement. In a 2010 study done on children aged 8-14 in South Sudan, researchers determined that children experience PTSD more than adults, shown as recurrent fears, lack of emotional control, poor concentration, disrupted sleep, avoidance of certain social situations, school dropout, poor academic performance and truancy [14]. Many children do not seem affected at first, and their teachers may not be aware of their issues until the child begins to feel safe and shares stories of their pre-settlement. Another reason teachers may not know students suffer from PTSD is because in the transition stage parents may have pressured family members to repress any sign of ill health which they feared would reduce their chances of being accepted for immigration [15]. Still, the most psychologically affected are children between ages 10-12 because events have had the strongest impact on their personality formation. In their new schools, they may be aggressive, have anger management difficulties and be leaders in social situations which may involve bullying. In the South Sudan research, students received effective treatment though encouraging expression through the arts, such as in music, stories, visual art and movement [16].

My students in the MEd program who chose to do their inquiries on teaching refugees in their classrooms spoke about their motivations as being rooted in their identities as teachers and as persons. Craig (pseudonym) knew nothing of the psychiatric designations for PTSD, and like many teachers, felt the common impulse to blame these young people for their behaviour in his classroom [17]. This was until the day he was able to engage a girl in conversation and found out what trauma she had experienced in her life, and his whole understanding shifted 180 degrees. From then on, he returned to earlier scholars he had encountered, and read them again through this new lens. For example, Noddings and the ethics of care resonated more powerfully now, and he understood more significantly the importance of active listening, creating authentic relationships and attending to students’ expressed needs, not the teacher’s assumed needs for that student [18]. Craig sees himself as remaining true to his core values as a teacher and knows what he can bring now to this new teaching situation.

3. Coding

Coding (also called programming, or creating step-by-step commands in order to complete a task)
allows a person to communicate with computers, apps, phones or websites. Some educators [19][20][21] see it as the ‘new literacy’ of the 21st century, promoting skills tied to creativity, critical thinking and problem-solving, and claim now is the time to add coding to the curriculum to prepare students for jobs as we shift to a knowledge economy.

“How can you teach kids coding when they don’t even know how to read yet?” This was the question my MEd student, Sher (pseudonym), heard from her administrator about her proposed inquiry in her Kindergarten/Grade 1 class. She discovered there are adequate materials available for teaching coding from PreK-12, but a distinct lack of understanding around the value of learning to code as well as professional development in the schools.

What coding in the early grades “looks like” is children playing games on boards, using manipulatives and electronic devices such as iPads for exploration and creativity. Two of the most popular starting points for teachers are Robot Turtles, a board game that teaches basic skills and computational thinking, and Scratch Jr., a program that asks students to create their own games and animation. Later, high school students may attempt to create code that builds in chains to achieve actions that can be applied in STEM fields and engage in “maker culture” or sharing their ideas and products through digital means [22].

Some educators have questioned the wisdom of jumping on the latest bandwagon when we don’t know what direction technology will take us in the next year, let alone ten or fifteen. Primary school researchers [23] argue for the benefit of “learning to code and coding to learn” because the skills students acquire in literacy and technology now will continue to be extended as they progress through their school years. Gee [24] concurs, stating that just as good video games require students to learn the language of the game, master the rules and logic in order to succeed, coding will build on that by preparing students to learn content-specific academic language in the future. Students are not required to learn algorithms or math languages; key here is the participation and collaboration. The conversations children have with one another while engaged in coding have revealed deep thinking processes, mainly as expanding their understanding through clarifying steps, applying new knowledge and evaluating or making decisions [25].

In the early years, one entry point or way of “humanizing” coding is to make an analogy with storytelling or building blocks. Stories are personal, resulting in products that students create in programs like Scratch Jr. or Alice that engage the learner and make it more likely they will persevere through the steps, comparable to following a writing process [26]. Similarly, when a child plays with building blocks, if a block is added in the wrong place, the tower will collapse and the student must go back and find the error [27].

In my MEd class, Sher easily identified her motivation to implement coding with her Grade 1 students. She teaches in an inner city school where 50% of the families live below the poverty line, many as single-parents or refugees, and not all own technology. Knowing that computer skills will be essential in her students’ future employment, she asked, what can I do for them now? She herself came from a stable home with a supportive family who encouraged her to go to university, so a strong sense of social justice was also involved in wanting to see her students advance. Not least, she saw a way to model lifelong learning for her students, and possibly their parents, by taking on the new subject of coding for herself and learning alongside them.

3.1. Mindfulness

For Jan (pseudonym), another student in the MEd program, the a-ha! moment came when she read Brookfield [28] and recognized the “hegemonic assumptions” or culture in the workplace where members take on more and more tasks in order to be seen by themselves and others as an exemplary role model. As a textbook case of an overachiever in her twenty five years of teaching, Jan adopted every new teaching strategy she encountered, filled in as an administrator for a time, organized professional development opportunities, mentored new teachers, and expected every lesson in her Grade 5/6 class to be a “perfect 10”. Like so many excellent teachers, she believed this was natural and for everyone’s good. She echoes Brookfield in saying, “If I didn’t end the day in a state of exhaustion, it felt like I’d wasted my time”. And then she read Wheatley’s [29] piercing questions:

- Are my relationships with those I love improving or deteriorating?
- Do I feel more or less energy for my work than a few years ago?
- Am I feeling more peaceful or more stressed? (p.215).

Often unwittingly, educators create an environment where their selfless service to their students and the profession makes taking on impossible loads the honorable and “normal” thing to do. Teachers have the advantage of knowing with certainty that they are making a real difference in many children’s lives, yet the time and the cost, mentally, emotionally and spiritually, that it exacts from them and possibly their loved ones, in the end threatens their own well-being [30]. Without reflecting on, not just their jobs, but their full and complex lives, past, present and future, and what they want their priorities to be, educators may feel
they lack choice and that one’s life is determined by career.

For Jan, and many other dedicated teachers, the first step is admitting that it has all become too much. Even choosing an inquiry topic focused on the self instead of education risks calling into question their commitment to the profession. When encouraged to research the growing field of mindfulness, this gradually turns around, and a sense of joy rushes in as they realize they are not alone. The sayings of the Vietnamese monk, Thich Nhat Han [31], often resonate for them, for example, “If you want the tree to grow, it won’t help to water the leaves. You have to water the roots”. Jan said it felt like receiving permission to be self indulgent for once.

Mindfulness can involve maintaining a meditation schedule, individually or with others; observing breathing techniques; spending time in nature; unplugging from technology; or, keeping a gratitude journal. Studies have obtained physical evidence of the benefits of practicing mindfulness, such as increased levels of cortisol in the brain which boosts a teacher’s self-compassion, effective behaviour in the classroom and reduced psychological symptoms and attentional bias, all possibly resulting in lower rates of teacher burnout [32]. Considering that about 10-50% of new teachers leave the field in the first five years, (depending on the school district), and about 5% leave each year after, (mostly due to untenable workload and increasing individual student needs), programs like mindfulness offer a path for many teachers to find balance in their lives [33][34].

Learning self-care requires diligence since old habits die hard; the challenge is unlearning to give all to others without feeling guilty. On a larger scale, in today’s world where the zeitgeist sweeps us up into believing we should be doing more and becoming more, educators are especially vulnerable because there are so many of our students who are in great need of us.

4. Conclusion

Because the disruptive behavioral issues of refugees tend to dominate educators’ concerns, and teachers may not be cognizant of their students’ traumatic histories, there may be a lack of empathy [35][36]. Some teachers remain unaware that refugees are not the same as other immigrants, but racism, discrimination and exclusion can also originate from individual dispositions and attitudes [37].

Second only to refugee youth suffering from trauma is the significant barrier of having no prior schooling or interrupted schooling. A lack of basic education, including no literacy, even in their own language, poses substantial challenges for many teachers. At the extreme end, some students’ foundational capabilities such as pencil holding and book handling cannot be taken for granted [38]. Also, for pre-literates, understanding “how” to be in the classroom may be difficult [39]. Taken together, these compounded factors make success in school problematic for many refugees, and this does not take into account the growing pains all youths have in reaching maturity.

Overall, time is on the refugee’s side. Early childhood educators have long known the value of play in allowing children a space to work out emotional and intellectual conflicts in their lives. Now researchers [40] recognize that play also has the power to heal. Through play, children can enter their inner selves and access voices of imagination to explore other versions of stories or events and create new outcomes. When seeing things in new ways, they also can reconstruct new meanings. This is a necessary component in healing for refugee students in particular. They can grow through conquering their worst fears and discover the deeper meanings in tragedies.

Time will similarly show if coding is the new literacy that students will need for success in school and their future careers. Teachers now have access to beginning worldwide programs like, “The Hour of Code” [41] which is no longer restricted to specific dates online. Taking advantage of computer games like Mindcraft that are familiar to even young students, both teachers and students can learn together how coding works, how to understand the tools of coding in “toolboxes” and the ways to assemble commands with immediate actions that will set the stage for learning in later grades to grasp the logic of more complex coding.

Giving some time back to teachers is also critical for everyone’s well-being. In light of the array of new challenges and paradigm shifts happening in schools right now, teachers will have to attend to methods of self care. Mindfulness is not self indulgent nor an activity that takes valuable time away from teaching and learning. In fact, through its regular practice, educators can replenish their minds, bodies and spirits, and become clearer on priorities in all areas of their lives.

Teachers are the world’s antenna for detecting initial signs of change and all educators would be wise to pay heed. Given their on-going teacher education, moral development and invaluable experience in working with youth, we must support their overall mental and physical health practices and not expect more from them than what is humanly possible. In this manner, we can enable them to continue to be the best that they can be.

The author would like to thank teachers in the Masters of Education program 2014-2016 cohorts at Simon Fraser University for sharing their teaching stories.
5. References


[5] ibid


Critical Pedagogy as an Application of Active Learning

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Abstract

Many education systems use a primarily passive approach to learning. To create a deeper and more meaningful education, educators need to use a different approach: what is commonly called active learning. An active learning approach attempts to engage students at higher levels of thinking so that they are more interested in, better engaged with, and understand better the course material. However, since active learning can be daunting for many people, a more concrete example may help. Critical pedagogy is actually a good example of applying active learning principles in a classroom. Even though it has a specific political goal in mind -- that of empowering students to become agents of social change for greater equity and justice -- the methods they use are very much what is required for active learning. This paper compares the two approaches to assist educators take a more active role in teaching students.

1. Introduction

Many education systems follow a traditional method in their learning process. In other words, in a traditional method a teacher teaches in his/her classroom and the students are taught; the teacher knows everything (i.e., active) while the students know nothing (i.e., passive); the teacher talks and the students listen and sometimes they can ask questions which are related to syllabuses; and the teacher is the subject and the students are mere objects [3]. In the traditional education system, student in all levels may achieve the passive part of learning (i.e., lecture, reading, audio visual, and demonstration). However, in active learning, students are required to engage in higher-order thinking tasks (e.g., analysis, synthesis, evaluation, reflection) through various activities (e.g., see [2]). For developing active learning the education system needs a special kind of pedagogy like critical pedagogy. As McLaren asserts, the major concern of CP is the centrality of politics and power in our understanding of how schools work [22]. To Freire, education should lead to transforming action and it is a political praxis which constantly serves to liberate human [7]. Good teaching should aim at political transformation for the purpose of justice [4].

2. Literature Review

In this section we will focus on two topics: active learning and critical pedagogy.

2.1. Active Learning

Active learning (AL) is a method for engaging students in higher-order thinking tasks (e.g., analysis, synthesis, evaluation, reflection) through various activities [3] so that students achieve more than merely the passive part of learning (see Figure 1). For example, instead of listening to a lecture on some topic students would discuss the topic with each other, imagine how could be used in practice and provide concrete examples, and give a presentation on these examples. This could be done individually, but often it is done in groups so that multiple students can be discussing together the same topic, using their own examples, ask questions during the presentations, and so on. AL requires much more effort from both teachers and students. However, there are many in-class activities that are obvious examples of active learning: group discussions of material, giving feedback and doing reflection on one’s own work, peer evaluation, giving presentations on material. As such, classroom management becomes quite important; it is necessary for teachers to manage the students so that these more active exercises can be promoted and effectively conducted.

When teachers organize their classroom using a transformational leadership approach, this can also be quite beneficial. Transformational leadership is meant to bring about a positive change in others [1]. When used in the context of active learning, this is meant to create personal growth in students and help them gain understanding in a self-directed manner. Although transformational leadership is discussed in terms of creating personal growth, this is compatible with the goals of AL since anything consciously learned and experienced through practice and application has the potential to result in personal growth.
growth. To use transformational leadership, a teacher identifies what changes are needed in students, creates a vision for guiding the students to realize that change, and then guides the students in executing that vision [1, 18]. Students are motivated to follow this vision by understanding how it is related to their own growth, to future work or livelihood, and the wider community to which they want to belong.

![Diagram showing the difference between amounts learned through different means of instruction](from [3])

A teacher using an AL approach needs to read the current state and quality of the class, so as to promote the appropriate next set of discussions. This can be done through effective questions, discussions, and thinking—whereby a teacher attempts to solve various questions such as [9]: What should questions require from listeners? What responses should be allowed? How can discussion resulting from a question be limited and focused? How can thought and attention be directed to the appropriate topic? The deeper and richer that students are able to think, the deeper and richer will be their learning. As such, students can be encouraged and supported in becoming better thinkers and will become better learners in the process. Better thinking can result from asking better questions, having a diversity of viewpoints (e.g., diversity of backgrounds / worldviews of students), and promoting a variety of opinions and positions on some topic [15]. Such variety can help to engage students’ minds more deeply. Teachers may also consider the upper portions of Bloom’s Taxonomy, to develop questions for discussion. Since open-ended questions can prompt a variety of responses, this type of question is usually more supportive of AL [5]. Creating an environment that promotes a creative, expansive, and open style of thinking, critiquing, and questioning can also create strong possibilities for AL [24]. Although teachers are often the one asking questions, students can be asking questions as well and creating an environment where students are able to ask such questions will also help to deepen the learning that occurs.

### 2.2. Critical Pedagogy

As Critical Pedagogy (CP) is an approach to language teaching and learning concerned with transforming relations of power which are oppressive and which lead to the oppression of people [14]. As such, it tries to humanize and empower learners. In a more specific sense, Ira Shor defines CP as: "Habits of thought, reading, writing, and speaking which go beneath surface meaning, first impressions, dominant myths, official pronouncements, traditional clichés, received wisdom, and mere opinions, to understand the deep meaning, root causes, social context, ideology, and personal consequences of any action, event, object, process, organization, experience, text, subject matter, policy, mass media, or discourse” [23].

A major purpose underlying CP, then, is to critique and challenge the way in which schools affect the political and cultural life of students; this can be done through analyzing, critiquing, and discussing the power that schools have over the critical thinking abilities and activist attitudes that students develop [6]. Furthermore, teachers who use a CP approach need to realize their role in empowering and transforming students, so that teachers can become agents of change as well instead of perpetuating injustice and inequity [22]. Thus, the major goals of CP are raising awareness of, and working to prevent and fight against, discrimination against people [11]. It is a direct challenge to any form of domination, oppression, or subordination against others.

The approach of CP is most strongly associated with the Brazilian educator and activist Paulo Freire, who described the role of education as being completely connected to being humanized social agents of positive change in the world [8]. This view of education as being intimately linked to political and power struggles is quite different from traditional perspectives of education, which claim to be neutral in such struggles and detached from political ideologies [6]. In many ways, CP is a response by researchers and practitioners in education to inequalities and oppressive power relations within the education system [16]. Before CP, there was a push to focus on larger socio-historical and political forces within the school itself (e.g., [12]). However, since many classrooms are so detached from the historical and social conditions that could be discussed that it was necessary to explicitly focus on such things through CP [25]. Thus, CP needs to directly address the potential cultural and political influences a school can have through describing, legitimizing, and challenging the cultural experiences of the historical and current
social reality of the students in a way that students learn to criticize, form and adjust their own social reality [6].

CP operates primarily through posing problems, and questioning issues in students’ lives, such that students learn to think critically about themselves and develop a consciousness of their own life conditions and the steps needed to improve the surrounding society [11]. This is usually connected to media literacy. In CP, students can be taught to become aware of, sensitive to, and capable of identifying representations of race, ethnicity, gender, sexuality, class, and other cultural differences within various forms of media [13]. As a result, students can become better able to identify when people are trying to use various forms of media (video, text, photos, etc.) to oppress, marginalize, or exert power over other groups and can thus avoid or fight against it. In essence, CP shows how audience, voice, power, and evaluation actively create particular relationships -- between teachers and students, classrooms and communities, institutions and society -- such that the relationships between knowledge, authority, and power become more readily noticeable [10]. Thus, through analyzing media, CP provides students with the tools to better themselves and strengthen democracy, to become empowered and able to resist manipulation and domination [13].

3. Discussion

CP is not meant to replace or abandon well-developed teaching methods, but to add a critical quality to both textbooks and instruction [21]. It is not meant to be a single-strategy pedagogy for empowerment, but is to be adapted and used in response to local context and needs [17]. In this sense then, CP is a theory and practice of helping students to develop a critical approach towards life [19]. In many ways then, CP is an example of AL in how teachers must engage students. Both require a more active and direct engagement of students, using collaborative, cooperative, and problem-based learning [3]. CP is highly political and has a very specific goal in mind [4]. AL, in contrast, is a more generic approach to learning that can be used regardless of the goal and content. However, even if a teacher is not interested in the political goal of CP, any application of CP faces much the same problems as any application of AL [19].

For instance, one goal of CP is to remove one-way relationships between student and teacher, where a student merely listens and is assumed to know nothing while the teacher has the necessary knowledge and does all the talking [3]. Although the removal of this relationship is not part of AL, the effect is the same: requiring students to become active agents of their own learning, sharing their own opinions, and discussing with other students such that the role of teacher is often shared to a lesser degree among the students themselves. However, in practice this can be very difficult to do. Students may feel uncomfortable being asked their opinion or describe previous experiences, as well as with ambiguity in that there may not be a single “correct” answer to a particular question or topic [20]. This can be handled through practice, in that as students are regularly and frequently encouraged to participate in this manner they are able to adapt [3].

As another example, teachers face a different problem once students start becoming more active: decentralizing authority such that group-work, collaboration, and self-directed learning become possible. This leads teachers to ask all sorts of practical questions:

“How do we invite students to be co-teachers if we […] begin from a position of intellectual authority? How do we encourage students to take control of their education if they know […] that we are still the gatekeepers of the course? How do we allow students […] to establish the curriculum of the course when there is a discipline-specific body of knowledge we feel compelled (or are required) to cover? And how do we de-center authority when we are working to gain authority?” ([3] p. 28)

Although these questions are posed in the context of CP, they are questions that can just as easily be asked by a teacher using AL. Furthermore, an effective solution is similar for both contexts: creating a genuine space in which students can contribute to the overall course [3].

While looking at the literature regarding CP then, it is possible to become enlightened in how to practice AL. Furthermore, it is not necessary to subscribe to the political aspects of CP to adapt its methods to other contexts. Fobes and Kaufman discuss the potential problem of using CP in a classroom where students resist the desire to take a progressive social activist role [3]. In such a case, it may be necessary to engage in dialogue with such students over the purpose of education and how, even if they are not interested in the political angle of CP, they are still actively working towards change in society through their desire or intention to use their education to further a career.

4. Conclusion

The For educators interested in promoting a deeper, richer, and more meaningful education the theory of AL is likely an appealing one. However, the increasing popularity of CP may encourage others to take their approach to education. As this paper has discussed though, the two approaches are very similar and CP can be seen as an application of AL in a specific context: that of empowering students to become agents for positive social change. This requires not only the transformational
leadership approach beneficial for AL but a host of other AL strategies, such as group work, presentations, group discussions and question sessions. For educators looking to find a way of implementing an AL approach in their classroom, it may be beneficial to use the more concrete example of CP as a starting point and go from there.

5. References


Session 32: Leadership

Title: The Importance of Leadership Development through Cognitive Mediation Methodology
(Authors: Ana Lucia Zanovello, Alex Marques)

Title: Interrogating New Imperatives for Education Business Leadership Preparation in Australia’s Autonomous Schools: Work-in-progress Report
(Author: Karen Starr)

Title: Relationship between Principals’ Leadership Attributes and School Effectiveness in Secondary Schools, Nigeria
(Author: Nkwusi Blessing Ginika)
The Importance of Leadership Development through Cognitive Mediation

Methodology

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Abstract

Some expressions have become common in the education area in the past few years: “learning to think”, “learning to learn”, “training for competencies”, and inclusion. That is why it is important for schools to balance content processes with development of thinking skills. Objective: Comparing the training provided by the traditional learning to that from learning mediated by workshops based on the Instrumental Enrichment Program. Method: Bibliographic, descriptive, and qualitative research. Results and Discussion: The results showed the cognitive intervention programs, and recognized their advantages to both leaders and subordinates. Conclusion: It is concluded that leadership is a method to lead and influence a group of people, making them generate expected results, being mediation an interaction act between a mediator and a mediated party, and mediated party’s cognitive development results from the direct exposure to the world and from the mediated learning experience.

1. Introduction

In the education area, some expressions have become more and more common in the past few years. “learning to think”, “learning to learn”, “training for competencies”, and inclusion.

That is why it is important for schools to balance content acquisition processes with development of thinking skills.

As such, it is clear that one of the key principles to autonomy, critical and creative thinking is providing the student with mental strategies that enable him/her to understand not only what the knowledge object is, but, more importantly, how to achieve it.

At this point, teacher is the key to transform the educational practice, as they are required to ponder on the conceptions on which education is based, as well as it can offer them some tools to help them face the challenge of integrating theory and educational practice.

Often, educators do not count on the necessary elements to develop students’ reasoning, ability to solve problems, and creativity to realize their ideas in school daily life.

Thus, leadership becomes a key process in any organization, especially, schools. Leadership is a form of influence, it is an interpersonal transaction where an individual acts to change or to cause a behavior in the other one, in an intentionally manner [14].

In the corporate world, leadership is in the spotlight, especially now when organizations are more and more competitive; as such, this is a right scenario for discussing the aspects and evolution of leadership and how we work on its development in education.

Bergamini points out the importance of presenting the evolution of the term leadership, which has been used for over 200 years in the English language [3].

Fielder indicates that the concern about Leadership is as old as the written history: Plato’s Republic represents a good example of such initial concern by addressing the appropriate education and training of political leaders, as well as that of most of the political philosophers, who since then have been dealing with this question [8].

In 1994, Bergamini stated that the contribution made by the theories highlighting the importance of motivation within the leadership process is invaluable, as it was possible to perceive that, in the search for efficacy, it is not up to the leaders to motivate their followers. The synergistic potential contained in the motivational needs constitutes a basic repertoire of personal powers, which is inherent to everyone [3].

According to Bateman and Snell, leadership can be taught and learned, as it seems to be the invocation of skills owned by most people, but used by a minority. It is something that can be learned by anyone, taught to everyone and denied to no one [2].

Chiavenato points out that leadership is a key process in every organization. The administrator should be a leader to deal with people who work with him/her. Therefore, leadership must not be confused with administration or management. A good an administrator or manager may be a good leader, however a leader is not always a manager or administrator, even though the corporate environment definitely needs a leader [5].

As such, motivation is connected to craving, needs, and aspirations of each one, mobilizing their energies to their life objective.

Freitas e Rodrigues mention that we must take into account the existence of individual and cultural differences in everyone when it comes to motivation. For Chiavenato motivation is one of the main managerial
responsible. Managerial influence on employees require an effective leadership and a continuous team motivation, working as a driving force of the human behavior [14] [4].

Today, People Management is aimed to govern internal behaviors and enhance human capital, so to maintain or introduce a qualified workforce to the market. Due to the technological development and quick society changes, the use of this tool became essential in the search for talents in the organizations [19].

People who were simple employees became associates with an active voice, playing an important role in company’s success. This transformation has also brought valuation, incentives, and training to retain talents, so that they could develop themselves along with company’s objectives [6].

Organizational communication was prioritized to conquer or maintain company’s success, as well as to sustain a thriving environment contributing to the implementation of new actions and challenges. It is not easy to maintain an effective and efficient communication due to the differences in the way each individual behaves, thinks and acts. In this sense, the manager must pay attention to society changes [17].

The world is changing very quickly, even transforming the Human Resources area, which has now different names: People Management, Management with People, Administration of Intellectual Capital, Human Talent Management, Competency Management, among others, to keep it arranged in the area while represented in a new space [6].

By virtue of these changes, market demand has also grown quickly and, as such, requirements for hiring talents.

Therefore people are part of a company’s intellectual capital. Successful organizations have realized that and then treat people like their business partners and competency providers, and no longer like simple hired employees [6].

As a result of random, quick changes, interpersonal relationship is also modified to meet new demands. Aspects that usually were not valued, now became a concern for the companies, because the way one professionally behaves in face of a challenge has a direct or indirect impact on a company’s goals. That is, goals, profits, investments, business, etc., are linked to human behavior [6].

Focus on relationship is more and more important in the professional profile required by companies. Technical experience used to be the most important skill, but today behavioral abilities of flexibility, emotional intelligence, creativity, etc. have gained ground. Being an excellent technician is not enough, one has to perceive and respect the differences of each team member [2].

If we work in a bad mood, we lose the focus on group cooperation and integration, impairing people communication and motivation. If, instead, we use maturity, self-knowledge, and good judgment in our actions, we will improve our self-esteem, contributing to an environment of exchange and development. Developing a good level of behavior with everyone is an individual and organizational responsibility [2].

A report elaborated by American consulting firm Hay Group International, in 2009, showed that leaders who invest in actions to motivate teams can achieve better results in terms of revenues, customer satisfaction, and talent retaining. According to this global survey, there were companies that maintained investments to attract and engage professionals through a clear, honest communication. As a result, their results were positive during the period of the economic crisis [25].

2. Objective

Comparing the training provided by the traditional learning to that from learning mediated by workshops based on the Instrumental Enrichment Program.

3. Rationale

Our interest in developing this study results from understanding that capitalist competition and globalization process require companies to look for strategies to obtain productivity gains through streamlining of work processes, investing in the training of its leadership.

This study is justified by that, and may serve as a basis for other ones that may follow this very line of research.

4. Theoretical basis

4.1. Strategic management and educational services in Brazil

As suggested by Fahey, strategic management is the name of the most important, hard, and comprehensive challenge an organization may face, as the choices comprising the exploration of the present and building of the future impose administrators and managers a set of complex, excluding options [8].

Strategic management is nothing but defining how a company is going to be better for being different. Organizations that are better for doing things differently from the others are those that clearly define their objectives and goals, structuring and aligning their policies and practices, prioritizing and investing in creativity and Human & Organizational Development in a continuous, permanent way [16].

It is not different in the educational sector; in a more and more competitive market as the Brazilian, education institutes need, due to the vigorous expansion private education experiences today in the country, to face a challenge that may define the future success or failure in their business segment: the Institutional Strategic Management.

In Brazil, as from 1996, through Law of Education Guidelines and Basis (LDB) and other norms and
regulations, education segment experienced a significant change, with great flexibility and expansion of the activities in this segment. Several factors and the very composition of childhood education, elementary education, secondary education, technology courses, higher education, and E-learning provided new ways, horizons, and important challenges to education institutions [16].

An education institution is essentially characterized as a service providing organization, and a competitive edge is precisely the Strategic Management and Human & Organizational Development [16].

Above-mentioned author also states that: organizations are made and comprised of people, being people and teams, their relations, complexity, and peculiar dynamics in the organizational context, that build the foundations for those institutions.

The main challenge of Human & Organizational Development is how to address the individuality and how to lead it in an ever-changing environment full of diversity and transformation.

In this scenario, Human & Organizational Development plays an important, strategic role, as long as, transformational leadership with efficacy, efficiency, and effectiveness is critical to assure the success and excellence of any institution.

Sciotti says that a professional team organizes itself from the work of each one. Every individual in a group, regardless of their tasks, provides a unique background of knowledge and experience, and, when interconnected, they broaden the reach of a team. In this sense, manager has an important, relevant responsibility for valuing people, because he/she must pay attention to the establishment of unnecessary undermining processes that create a distance between individuals [28].

Freire suggests educators to turn their behaviors into a role model for the action. Although the author referred to the education area, this proposal is also suitable to the manager. Do you want to be respected? Respect other people. Would you like to live in a dialogical environment? Be open to dialog! [14].

Sciotti contextualizes that a skilled leader needs to deepen the self-knowledge and grasp of topics, techniques, and strategies necessary to the development of his/her action [28].

We are influenced by studies and lines of thought that idealize leader’s role. As considers Jeffrey Pfeffer,

So far, somehow, many people still see leader’s role as the one with insights enough to make decisions, as the great strategist who knows a lot about the details of operations. In other words – despite all this literature about empowerment and decentralization – leaders are perceived as mega-executives, knowledgeable, with more technical skills, and more qualities than any other executives in the company [23].

5. Leadership as a question of attitude

Khoury says that leading means to exercise an influence on what is going on around, either building the life one wants for oneself or inspiring different people to do the same. Leadership skills can be developed and depend upon practical, objective actions.

As such, leading ability may be acquired by the development and by knowledge [18].

For Khoury, leadership is a question of attitude, he says that all our daily actions may have a positive influence on people who interact with us [18].

Therefore, in this sense, we have to identify how to acquire that ability and which existing methodologies will make our learning easier.

Khoury still lists some topics that he considers essential for leadership development:

• Communication;
• Initiative;
• Respect;
• Building of relationship;
• Conflict resolution;
• Execution;
• Flexibility;
• Quantum leadership: you can improve your life quality if you eliminate factors that drain your energy;
• Different generations, different strategies; and
• Considerations on the Leadership and market trends.

For Akl, leaders lead a number of good professionals and good ideas towards good results. Thus, leading means to listen a lot, to pay attention, to consider, and to decide. Managing is also to magnetize, to attract, and to fascinate relationship groups - employees, shareholders, customers, vendors, among others [1].

There are hundreds of courses that try to understand and to map leadership, and the hardest part, to teach executives to become leaders. Akl considers that it is good to study and learn new things, but, leading is learned through leading.

First, I see that there are no leaders who do not commit themselves, because it is impossible to lead without risking or daring.

6. Theory of Cognitive Modifiability and Instrumental Enrichment Program – IEP

Structural Modifiability Theory (SMT) is the basis for understanding other proposals of Feuerstein: Mediated Learning Experience (MLE), Instrumental Enrichment Program (IEP), and Learning Potential Assessment, as, for Feuerstein, modifiability is an essential condition for human adaptation. It is about an ability to actively reacting to stimulation, elaborating consistent, significant actions [30].

7. Reuven Feuerstein – his story

Before understanding the Instrumental Enrichment Program (IEP), it is interesting to learn the theory on which it is based and its creator, Reuven Feuerstein. Born in 1921, in Botosan, Romania; Jew, he lived in Israel from 1944. PhD in Psychology from University of Sorbonne (France), he studied with André Rey and Jean Piaget, and today he is director of the Cognitive
Feuerstein, as psychology director of Youth Aliyah Organization, has worked with children and teenagers who were victims of the Holocaust and of other hard conditions they lived in several countries. The objective of this organization was to physically, morally, and educationally recover these individuals. IEP (intervention) and LPAD (diagnosis) were initially created to serve these people, who faced a cultural privation situation, and, consequently, a cognitive delay [17].

In face of this major challenge, Feuerstein also created the theory that supports his assessment and intervention programs, Structural Cognitive Modifiability Theory (SCMT), whose principle is the belief in human potential to develop and the search for realization of this potential.

Fonseca explains that structural cognitive modifiability (SCM) tries to objectively describe humans’ unique, peculiar, singular, and plural ability to change or modify the structure of their cognitive mechanism to adapt themselves to the constant, ever-changing situations that characterize the external surrounding world. It is not only about individual’s responses to external stimulation, or responses to changes in internal conditions, but, actually, responses as products of a series of volitional, intentional acts. Cognitive modifiability must be defined as structural and not occasional or accidental, that is, it encompasses a change to a component, but that affects the entire cognitive function. It is a transformation of the very cognitive process, in itself, its pace, amplitude, and self-regulated nature.

SCMT is, therefore, characterized by the intrinsic central permanence and consolidation.

Thus, the basic rationale of this theory is reinforcing the nature of the human being, as an open system, available and flexible to the change during their entire life [13].

Souza; Depresbiteris, and Machado, also address the concept of modifiability that implies a dynamic conception of human existence. The behavior is considered a result of an individual’s reaction to certain internal and external stimulations, more than from a fixed intelligence. The concept of intelligence, for Feuerstein, corresponds to the disposition or tendency of the organism to be modified in its very structure, as a response to the need for adapting itself to new stimulations, either internal or external [30].

Therefore, there is a difference between modifiability and modification, which, according to Feuerstein, means: Modification is the product resulting from development and maintenance processes; Modifiability refers to the structural change processes in the mind of an individual, even in case of any problems in its etiology [30].

Thus, this belief in the humans’ inherent learning potential is Postulate of the Human Modifiability, according to which:

Every human being is modifiable;

The specific individual who is mediated is modifiable;

I can help my mediated individual to modify him/herself;

The mediator is modifiable too; and

The environment where the mediation takes place is also modifiable [28].

Regarding his theory, Feuerstein says that individuals may learn from two stimulation sources: learning by direct exposure and learning by mediated experience [13].

In the direct exposure learning (DEL), the individual records the stimulation and responds to them or actively interacts with the stimulation in face of which he/she is directly confronted (basis of Piaget’s theory E – O – R). The direct exposure learning takes pace throughout life, as a result of the relation with stimulations, out of which arise several modifications in the cognitive process. This learning form occurs as a transaction between people and the physical and social surrounding world. Although its importance, this learning, nevertheless, is sufficient to produce levels and standards of cognitive development, it is not enough as it puts forth subject-object relations. So, to achieve cognitive, hierarchy, and complexity levels, a mediated learning experience is necessary, “which is responsible for the main structural changes to human cognition” [13].

Fonseca points out again the relevance of the Mediated Learning Experience for the development of superior cognitive functions.

Direct exposure to stimulations is essential for the cognitive development, but the mediated interaction, that is, the very culture, is what enables the access to superior cognitive functions. The mere presence of stimulations of the internalization through schemes cannot explain the cognitive modifiability and the maturation of an individual’s organism. Cultural phenomenon, that is, Mediated Learning Experience, becomes a factor that explains human evolution.

“[…] Stimulation-organism-response relations do not exhaust or explain human learning. The human development is a product of two interaction models: one with the stimulations; and another with the mediators, which act and introduce effects to the organism of the individual who Learns” [13].

It is, therefore, highlighted the importance of the mediator’s role in the cognitive development - the better the quality of the mediation, the higher is the level of the cognitive modifiability; that is, mediation is the condition for learning, regardless of genetic, organic, and maturational factors that may impair the learning process, but it significantly depends on the quality of the offered mediation.
Thus, mediation is comprised of the interaction between the subject and the knowledge by means of the intentional intervention of another subject. According to Fonseca:

The mediated learning experience is an interaction where the mediator (mother, father, or teacher, for instance) positions him/herself between the organism of the mediated individual (son, daughter or students) and the stimulations (or signals, images, objects, tasks, problems, events, etc.), so to select, change, expand, or interpret them, using interactive strategies to produce meaning beyond the immediate needs of the situation [13].

As such, for Feuerstein, mediation is an interaction act between a mediator and a mediated individual.

Thus, we need to conceptualize the two ways of learning - direct exposure and through mediation.

In the direct exposure learning, the individual learns on his/her own, connecting him/herself to other people, objects, and events in his/her environment. And, in the mediated learning, the individual learns only by the direct exposure to the stimulation, but by means of someone who acts as mediator between him/her and the environment.

As such, mediated learning is the way by which stimulations are transformed by the mediator, guided by their intentions, intuitions, emotions, and culture. The mediator selects the most appropriate stimulations for their intervention in an intentional way. This way, the concept of intentionality expresses mediators' determination to reach the mediated individual and help him/her to understand what is learned.

According to the intentionality concept, mediator deliberately interacts with the mediated individual, selecting and interpreting specific stimulations, means and situations, to make the cultural transmission easier and make it appropriate to each mediated individual, adapting it to their specific needs.

Intentionality, nonetheless, must not be an exclusive attribute of mediator, it must be shared with the mediated individual.

8. Methodology

This is a descriptive, qualitative literature review. The target audience was comprised of 25 leaders who hold positions of directors and hospital consultants at Cruzada Bandeirante São Camilo Assistência Médico-Social - an institution of Grupo São Camilo, one of the largest hospital groups in Brazil.

Cruzada Bandeirante São Camilo was founded in 1949 and, since 2008, has a partnership with the State Secretariat of Heath of Sao Paulo to perform the management of public Health Units in the modality of Health Social Organization. Currently, it manages 13 Health units, among large-sized hospitals, outpatient care and rehabilitation units. It performs about 900,000 consultations every year. It counts on about 3,200 employees and 1,000 physicians.

Cruzada Bandeirante established a partnership with Senac São Paulo, a renowned Brazilian education institution, which stands out for its education excellence and quality in our country. It has been operating in the education area for 68 years and has a University Center that offers professional training courses and higher education. Senac has 620 operating units, serving over 4,610 Brazilian municipalities. Senac São Paulo is a Training Center authorized by Feuerstein Institute in Israel to offer organizations an innovative methodology, oriented to enhance the performance of professionals through the expansion of their reasoning ability.

For over half a century, Feuerstein Institute is devoted to help people develop their potential and claim their legitimate place in society.

The program was organized by an experiential cycle of workshops based on the Instrumental Enrichment Program that develops the mediated learning, whose main objective is promoting significant and long-lasting changes on the participants.

Each workshop has a workload of 12 hours monthly in a total of eight workshops.

The first of them started in March 2017, the second one in April 2017, and the other ones in the subsequent months.

The application of the workshops was performed by an Expert Teacher of this methodology, using exercises that are part of the Instrumental Enrichment Program developed by Reuven Feuerstein.

Following, the titles of the workshops:
- Workshop 1. How to develop the ability to express oneself;
- Workshop 2. How to deal with, recognize, and act in relationship systems;
- Workshop 3. How to organize information for an effective learning process;
- Workshop 4. How to solve information ambiguity;
- Workshop 5. How to identify, analyze, and solve problems;
- Workshop 6. How to decrease impulsiveness in the decision marking;
- Workshop 7. How to develop mental flexibility; and
- Workshop 8. How to manage time.

Content-free exercises were used, which are part of the Instrumental Enrichment Program (IEP), developed by Reuven Feuerstein.

The activities may be developed by anyone, regardless of their age or learning difficulty level. That is because of humans' cognitive structures that are flexible and, therefore, subject to modifications in order to be adapted to new contexts, able to change the expected course of its cognitive development. After each workshop, the assessment was made by the mediating teacher through classroom interventions expanding individuals' reasoning capacity.

Following the figure of Feuerstein methodology
9. Results and Discussion

Results showed the importance of the cognitive intervention programs and recognized their advantages to both leaders and subordinates, and the dynamic culture and its meaning may be negotiated in the context.

For Pedrini, in the context of the industrial learning, the building of knowledge, which goes beyond technical qualifications, is more and more a necessary condition. It provides learner with abilities and competencies to enable him/her to stand out in the job market[23].

Robbins says that leadership is the ability to influence a group towards the achievement of objectives. The author ponders on the existence of six features that usually differentiate leaders from subordinates: ambition and energy, desire to lead and influence, honesty and integrity, self-confidence, intelligence, and relevant knowledge of the area under his/her responsibility [25].

Freitas and Rodrigues considers that leadership is associated to stimulations, incentives, and impulses that may cause the motivation of individuals for the accomplishment of the corporate mission, vision and objectives. Thus, leadership, just like motivation, reminds more subjective questions of humans, those related to “our guts”, which drive us to “what makes sense for us, something to which we assign a meaning” [14].

For the mentioned authors, the limit of the performance is not static and changes by the acquisition of new knowledge, by the enhancement of abilities and change of attitudes and interests. Thus, the connection between the processes of motivation and leadership reveals that the leader is always an instrument of the group.

As such, the study of Bergamini points out that most of those holding positions must be leaders, as she believes that for working, one needs to be motivated. Tack reminds that managers often manage departments, people, but do not lead them. Since an effective leadership will motivate them spontaneously, and this is
the keyword when they devote their minds and physical attributes to a greater objective [3].

For Feuerstein, cognition refers to processes by which the individual may perceive, elaborate, and communicate information to adapt themselves. This scholar highlights that cognition enables people to move flexibility and plasticity that, allied to the information process acquisition, become the basis for the adaptability and learning that enhance intelligence development [12].

Feuerstein considers mediation the interaction act between a mediator and a mediated individual. Thus, the author believes that the cognitive development of the mediated individual does not result only from the organism maturation process or from an independent, autonomous interaction process, but from a combination of the direct exposure to the world and the mediated learning experience.

For Feuerstein, cognitive and affective dimensions are the two sides of the same transparent coin: the first one corresponds to structural elements that explain how a person learns; the second one expresses the energetic factor of the learning act. Looking at any of the sides, they are both present [30].

10. Final considerations

Through the studied carried out, we conclude that leadership is a way to lead and influence a group of people, making them generate the expected results. It is about the ability to motivate and influence the subordinates, in an ethical, positive way so that they may cooperate in a spontaneous and motivated manner to reach team and organization’s objectives.

We perceived that the leader is the reference for his/her subordinates and plays an important role in team’s motivation, while his/her attitudes have an influence on team’s behavior.

In an organization, a motivated leader who motivates is crucial, his/her role is perceived as very important and his function is strategic, so to meet the organizational goals.

It is observed that labor relations are based on competitiveness, while generating inclusion; it is up to cognitive education not only to equate opportunities, but of the direct exposure to the world and the mediated learning experience.

Now when organizations are more and more competitive; as such, this is a right scenario for discussing the aspects and evolution of leadership and how we work on its development in education.

Bergamini points out the importance of presenting the evolution of the term leadership, which has been used for over 200 years in the English language [3].

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Interrogating new Imperatives for Education Business Leadership
Preparation in Australia’s Autonomous schools: Work-in-progress report

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Abstract

This work-in-progress report discusses Australia’s autonomous schooling policies and their effects on school leadership, business management and governance. In particular, it focuses on new imperatives for education business leadership, as school leaders face new demands, expectations and accountabilities around business stewardship. The research interrogates the rationale for school autonomy policies and the outcomes policymakers are hoping to achieve. It explores stricter risk management regulations, audit and compliance measures. These have been instigated as school autonomy policies have placed education business competency in the spotlight. While this qualitative research has an Australia-wide focus, this work-in-progress report focuses on the first stage of the project that focuses on school autonomy activities adopted in Western Australia and the effects on School Business Managers/Officials. The report discusses the major themes emerging from the research to date and records future research plans.

1. Introduction

Education policies endorsing school autonomy are being pursued in various ways across the Australian states. Inspired by values underpinning neoliberalism and free market economics, these policies deliver greater authority to education leaders and governing councillors to make decisions about all aspects of a school’s operations. School autonomy empowers education leaders and governing councillors to have complete budgetary control, to be able to appoint staff and decide on the staffing mix, to determine the school’s strategic priorities (in alignment with the state’s education priorities), and encourages partnerships with parents, the community, the corporate sector and other schools. In other words, autonomous schools are designed to operate like private schools, without direct control of central or regional education authorities even though they are government schools.

While conveying greater decision-making freedoms for schools, autonomy comes with strings attached. Autonomous schools must abide by each state’s Education Act, laws and official curriculum, and devise strategic plans that accord with state priorities for education. Additional responsibilities in strategic planning, finance and business management, personnel management, marketing, public relations and governance increase the scope and complexity of school leadership and administration. Governments have, therefore, instigated a range of regulatory compliance, measurement and audit functions to mitigate risks, enabling education departments to steer from afar while keeping a close eye on school activities and outcomes.

Simultaneously, there are high expectations that education (the third largest area of public expenditure), will demonstrate ‘value-for-money’, calibrated through improved student achievement standards. Criticism from governments and the media alike claim that greater spending on education is failing to produce educational improvements. These reproaches are often referred to as “education crises” in light of the country’s plateauing or (slightly) slipping standards in national and international standardised test rankings. Given their new autonomy and the greater responsibility and accountability this entails, education leaders are now under increasing pressure as prime movers in turning the fortunes of schools around and lifting standards of learning achievement for all students.

High profile media coverage around the country focusing on poor school business or governance oversight and highlighting devastating consequences for schools (e.g. school closures, receivership, sackings, fraud and other gross misconduct), have heralded even harsher crackdowns to ensure compliance. It is paradoxical, therefore, that autonomous schools are actually under more external control and scrutiny than ever before [1].

Late last century ‘local school management’ policies were popular in many Australian states,
but this century policies enabling even greater school autonomy have been progressively rolled out. Victoria, for example, introduced its Schools of the Future program in 2000 and has since introduced a policy of complete or ‘default’ autonomy, making it the most devolved schooling system in the country. Other states, such as New South Wales, have retained more centralized systems until quite recently, spurred on by the current federal government’s incentivized ‘independent-public’ schools policy agenda. This work-in-progress report focuses on the state of Western Australia where the Department of Education embarked on its Independent Public Schools initiative in 2009.

The report investigates how school autonomy affects school leadership, business management and governance practice with a focus on the impact on School Business Managers/Officials (named Managers of Corporate Services in Schools in Western Australia).

2. The research

This research investigates the goals, rationale and expectations behind school autonomy policy initiatives, and examines the effects on education business leadership. It asks:

• What is the policy rationale for autonomous schools? What are the expected benefits?
• How do education leaders perceive changes in education business leadership as a result of school autonomy policies? (This report focuses on the responses from Managers of Corporate Services in Schools only.)
• What conditions enable or challenge autonomy at the school level?

The research is an exercise in grounded theory building based on semi-structured interviews with education officials, school principals, school business managers and governing councilors/board members. In Western Australia, six officers with systemic responsibilities for the Independent Public Schools initiative and 40 Managers of Corporate Services in Schools are being interviewed. Interviewees from the latter group have been sourced from a representative sample from across the large state of Western Australia: primary, secondary, special, K-12, metropolitan, rural and remote schools. Interviews are being conducted face-to-face and by phone (to enable full reach across WA, much of which is remote with long distances from major centers).

Through a grounded theory building approach, theory emerges inductively through the data as they are gathered. Emerging research themes and unexpected ideas are analysed and continually tested, producing further evidence and/or new theoretical insights [3]. Data are validated when common themes recur and the data are ‘saturated’, with subsequent interviews validating information from previous respondents.

Grounded theory building supports examination of individual standpoints within different contexts, and considers the inextricability of the macro, meso and micro policy contexts. Real life experience is taken as a starting point that connects individual agents corporeally and emotionally to the structural, the social and the historical. Grounded theory building demonstrates how large-scale social structures affect tangible realities in complex, contextualized, historical practice.

3. Western Australia: A case in point

The Western Australian Department of Education’s Independent Public Schools initiative has been progressively and more intensively rolled out over the past eight years. Government schools are able to apply to the Department of Education for Independent Public School status, and, at the time of writing, over 70% of government schools have been granted autonomy.

Schools granted Independent Public School statuses are inspected for successful student achievement outcomes, budgetary soundness, regulatory compliance and capable governance. Principals of Independent Public Schools are “given increased flexibility and responsibility” to effect school improvements, and school communities must be prepared and have the capacity to “take on additional accountabilities” including support for change and school operational performance [3].

On becoming an Independent Public School, a comprehensive Business Plan and fixed term Delivery and Performance Agreement are signed, stipulating expectations and commitments to be met by the school over the period. As each Delivery and Performance Agreement expires, the school is reviewed before a further agreement can be developed. The Independent Public School review, conducted by the Department of Education Services, must demonstrate the school’s accountability for student learning standards and the learning environment, and includes progress against the Delivery and Performance Agreement and Business Plan. The review includes consideration of the school’s Annual Report, a principal’s report and the principal’s personal
professional performance review outcomes. In addition, the Department conducts an objective, independent verification of each school’s self-review of its performance [3]. Each new Delivery and Performance Agreement includes commendations for achievements to be sustained and identifies areas for improvement, and final review reports are made publicly available by the school [2].

The Department of Education cites several aims for Independent Public Schools. Primarily, autonomous schools are intended to:

• Make local decisions across a range of operations to ensure education outcomes for students
• Empower school communities to shape the ethos, priorities and directions of their schools to reflect the aspirations of their students
• Assume greater responsibility and accountability for their own affairs and have increased flexibility to respond to their communities
• Create diversity in the public school system and help build strong communities that are more able to respond to the needs of students while ensuring community input in school governance
• Be at the forefront of innovation in education so every child in every school achieves their potential. [3]

A review of the Independent Public School initiative was commissioned by the Department of Education in 2013 and conducted by the University of Melbourne [5]. This review cited additional aims of the Independent Public School initiative: these being to reduce bureaucracy and to improve accountability through direct delivery and performance agreements established with each school.

These objectives arrived at a time when the Western Australian Department of Education has experienced major restructuring (moving from a district to regional structure) and significant budgetary cuts (efficiency demands have resulted in reduced operational budgets and a system-wide freeze on new employment recruits). Combined with neoliberal notions of small government and individual sovereignty (for individuals and organizations), these contextual considerations provided a prime climate for moves to schools assuming management autonomy with the education department moving to a role of guidance and support rather than direct operational involvement.

The Independent Public School initiative won the 2013 Western Australian Premier’s Award for Excellence in Public Sector Management. In 2015 a further review was commissioned to identify the conditions that must be present for school autonomy to deliver student and school benefits [5].

The autonomous schools program places emphasis on the professional learning and development of principals so that schools move effectively from centralized bureaucratic control to assume independence through increased professionalization. This includes principals setting a clear vision and strategic plan to achieve envisaged improvements, building relationships with all staff members to build professional capacity, confidence, ownership and effectiveness, and aligning school business and resources to focus on teaching and learning improvement.

As a consequence of Independent Public Schools assuming responsibility for their own affairs, the Department of Education has initiated a series of extended education programs for principals, aspiring education leaders and Managers of Corporate Services in Schools. The main purpose of these programs is to ensure key personnel are able to manage the increased business risks and accountabilities in autonomous schools. Western Australia is the first state to commit funding to raise the qualification levels of Managers of Corporate Services in Schools, which justified this state being chosen for the initial phase of this research.

4. Initial findings

A brief summary of initial findings from interviews with Managers of Corporate Services in Schools (which are still in progress) includes the following indications:

a) A significant outcome of the Independent Public Schools initiative is that the role of Manager of Corporate Services in Schools is increasingly gaining prominence and these officers are now viewed as critical members of education leadership teams, advising school principals and governing councils and taking a leading role in education business decisions. Every educational decision has a business implication, and education business leadership now encompasses expectations that school resources will be targeted to learning and teaching to produce measurable improvements.

While the Manager of Corporate Services in Schools role has increased in importance and status, the job has also intensified and increased in scope and complexity, particularly around managing risks within the school and on behalf of the Department of Education. Many Managers of Corporate Services in Schools work with education leaders and governing councillors who do not possess business-related knowledge – a significant
risk - and hence they are the prime business leader, working with and for key education and governance personnel.

Further, Managers of Corporate Services in Schools perceive heightened expectations of their role from the Department of Education that is providing substantial investment in their professionalization, as well as from Independent Public School communities, where there is now a growing understanding of their role, the tasks they undertake, the advice they are able to impart, and how the role is vital in administering the school and benefiting its students.

b) School business leadership is very different from other forms of business leadership and management. Dealing with people and their learning – students, staff, board members and the school community – entails the business of the school being focused on educational achievements and outcomes. In addition, Managers of Corporate Services in Schools are responsible for enhancing and maintaining the school campus and facilities that both enable learning and contribute to the learning experience. In almost all ways the ‘nuts and bolts’ of education business is overlaid with people-related considerations. Independent Public Schools must demonstrate continual improvement, and being able to enhance learning performance becomes a business matter.

c) The main role of Managers of Corporate Services in Schools is to work with educators to target the school’s resources to learning and teaching. Previous research [1], indicates that the two most effective resources in improving student achievement outcomes are quality teaching and empowered teaching teams, and the ways in which the school uses time, with teaching and learning time used optimally with longer periods of instruction with no interruptions. Hence in Independent Public Schools, the role of business leaders is to ensure that most resources go to students’ learning and increasing teaching quality. Learning decisions are made cooperatively by teaching teams, teaching teams determine their own professional learning needs in alignment with school priorities, teachers have more time to plan each student’s program in teams, while time allocated for non-learning activities (for example, roll call and home group, assemblies, meetings, etc.) is allocated outside the hours of instruction.

Managers of Corporate Services in Schools must find ways to save money and find further sources of funds, which may be achieved through close cooperation with other schools or community groups of businesses. This finding demonstrates how education business leadership is very specialized and the knowledge and skills required differs from those offered in generic business courses. The more Managers of Corporate Services in Schools know about education, education policies, pedagogy and classroom practice, and the aims educators are trying to achieve, the better they are able to attend to managing school business to achieve education goals.

d) The great majority of Managers of Corporate Services in Schools enjoy their skills being used to the greatest effect and appreciate the re-casting of their role from back room functionary to playing an important leadership role. Managers of Corporate Services in Schools are able to take responsibility for school business and in so doing are aware that they save principals time and stress in areas that may not be within a principal’s realm of expertise.

Unanimously, Managers of Corporate Services in Schools believe that school autonomy substantially increases their workload and those of education leaders. However, working with an empowered school business leader enables principals to spend more time on teaching and learning and being a pedagogical leader, which puts teaching, students and their learning first. For example, it is commonly assumed that education business leaders will ensure the school’s compliance and risk management obligations, and oversee an increased range of audit reporting, leaving principals free to focus on students and teaching.

Similarly, Managers of Corporate Services in Schools understand that they can take a lead in preparing the monthly papers for school board meetings and in educating board members and educators in business operations. The Managers of Corporate Services in Schools who were not elevated to leadership status in their school argue that this is a result of the principal’s decisions. These officials felt their talents and interests were being wasted and not contributing to the school at large as well as they could. Hence the effectiveness of Managers of Corporate Services in Schools is viewed as being determined by principals and their willingness to work alongside and with business leaders in a team, collaborative approach. Principals who choose to retain a hierarchy with business staff are perceived as possessing an old-fashioned or out-of-date notion of school leadership, management and governance. Further, the Managers of Corporate Services in Schools who felt ‘kept down’ by their principal were less happy with their role and service than those who felt empowered to work to their full capacity alongside principals [6].

e) Drawing on the point above, Managers of Corporate Services in Schools perceive that the
success or otherwise of an autonomous school rests largely on the mindset and capabilities of the school principal. These sentiments relate to the ways in which principals are amenable to having a collaborative leadership team or an exclusive one (this is expanded in the point f below), whether they were respectful and mindful of budgetary / resourcing limits or whether they were profligate and irresponsible in their spending, whether they had respectful and diplomatic relations with stakeholders, and whether they were competent in juggling many complex tasks simultaneously and keeping abreast of all major aspects of the school’s operations. Slippage in any of these areas creates extra hard work for Managers of Corporate Services in Schools.

(As external reviewers of the Independent Public School initiative have warned, autonomy delivering only a compliance mentality amongst principals would not drive learning improvements, whereas a culture of trust and empowerment would achieve desired goals [5]. As a result, the Department of Education is emphasizing school leadership and capacity building, and professional learning for principals.)

f) As suggested above, the Independent Public Schools initiative places emphasis on the professional learning of principals so that schools move effectively from centralized bureaucratic control to assume independence through the increased professionalization of all staff. This includes principals setting a clear vision and strategic plan to achieve improvements, building relationships with all staff members to build professional capacity, confidence, ownership and effectiveness, and aligning school business and resources to a focus on teaching and learning improvement. Managers of Corporate Services in Schools were mindful of the extra work undertaken by principals, while also understanding that school leaders had to ‘let go’ and share power to be most effective. Hence, implicit in interview commentaries was endorsement by Managers of Corporate Services in Schools of the notion of ‘distributed leadership’ as a preferred leadership approach - one endorsing leadership at all levels, including in the business office. Further, there is a keen sense that empowered workers are more engaged and happier in their roles than those who are prevented from applying leadership in their role.

g) Managers of Corporate Services in Schools find that many school councillors/board members need to be educated into their roles, including the liabilities and responsibilities they accept on becoming stewards of the school. There is a view that school governance has been a neglected area in the past and that new imperatives associated with Independent Public Schools are demanding the rapid professionalization of school boards. Further, Managers of Corporate Services in Schools understand that school boards, like boards in other organizations, require and need to draw on many skill sets to operate effectively. There are perceptions that some board members (usually parents) do not appreciate the seriousness of their responsibilities or the difference between governance and management (there were many stories of board members’ attempts to intervene in education or operational areas that are not a governance preserve).

Independent Public School boards can choose to be an incorporated or non-incorporated board, with the former requiring a greater reliance on board compliance, oversight and skills. Managers of Corporate Services in Schools see the education and selection of board members to be of critical importance, and many have assumed an educative role in raising the understanding and effectiveness of school board members.

h) Managers of Corporate Services in Schools view it as vitally important that Independent Public Schools are able to make decisions about staff. The attitudes and behaviours of all staff members are critical if performance standards are to be achieved. This requires a team approach to assure the cooperation of everyone is working towards achieving school priorities. Principals must have good working relationships with teachers and Managers of Corporate Services in Schools must have effective working relationships with school support staff. There is a strong view that while choosing staff to suit the school’s context is important, there is also the need to be able to terminate the employment of individuals who are not performing.

i) Many Managers of Corporate Services in Schools are seizing opportunities to work with colleagues in other schools to share resources, expertise, collaborate on professional learning activities and mandatory tasks (such as policy development), and in some instances, school boards are considering amalgamation to operate across schools. This extends the purview of school business leaders and demonstrates their growing influence beyond the school gate. Cross-school activities are also becoming common amongst school principals alongside Managers of Corporate Services in Schools. This saves time and effort, spreads expertise and reduces business leadership risks.

j) Managers of Corporate Services in Schools are keen to learn and extend their education and qualifications. They are overwhelmingly
supportive of the Department of Education’s support for postgraduate qualifications specifically relating to education business leadership and appreciate the opportunity to be involved and to meet peers from other schools. Participants appreciate coursework tasks being focused on education business development in context and cross-school assignment work being encouraged. Managers of Corporate Services in Schools appreciate having the opportunity to acquire postgraduate university qualifications, which they believe raises their status amongst teaching staff.

k) The Independent Public Schools initiative is perceived as being supported by parents and school communities. School autonomy is seen to have ‘raised the bar’ for school performance and to have enhanced the school’s standing and profile in the community. Extended and more defined accountabilities to government (based on the individual school’s strengths and needs), is seen to heighten the impetus for success with failure not being an option. In this way Managers of Corporate Services in Schools believe that school autonomy encourages strategic thinking, innovation and entrepreneurship. These outcomes are perceived to serve as positives for education business in achieving school outcomes. One concern expressed by a few interviewees is that the enhanced status of autonomous schools serves to disadvantage the government schools that have not become Independent Public Schools.

5. Discussion

Several major themes emerge at this initial stage of the research that will be canvassed in forthcoming interviews:

School business matters and makes a difference: Managers of Corporate Services in Schools are busy professionals who understand how important their work is to schools. While an emerging profession, school business leadership is critical to effective school operations, leadership and administration. Having interactions with all education stakeholders and leading the team of support staff who have direct contact with students, teachers, parents and suppliers requires certain attributes, competencies and dispositions in order to be successful. The role is growing in scope, complexity and status such that Managers of Corporate Services in Schools see their profession as one on the move and on the rise.

Respondents working with principals and boards that did not have a business background firmly believe that their schools could not operate without them. And, as stated above, being able to take leadership oversight of school business affairs enables busy principals to focus on the school as a learning organization. This and the benefits brought about by providing resources in the most propitious manner to support education provide a great sense of professional satisfaction [6].

Leadership: There is evidence in this research to date that Managers of Corporate Services in Schools can be of most use to schools when they work in school leadership teams and are involved in strategic decision-making to best ensure resources are targeted to their greatest areas of need. There is evidence that while this is increasingly the case, it is not always the case, with many examples of Managers of Corporate Services in Schools being excluded from attending school board meetings and from major decision-making forums. Since education decisions are inextricably linked with business decisions, this situation fails to utilize school business leaders to their fullest worth and benefit.

Hence, conversations and understandings about leadership amongst educators and school business leaders are critical, since the ways in which we think and talk about leadership affects how leadership is enacted. Schools are no longer places where sole, charismatic, ‘white knight in shining armour’ conceptions of leadership will bring the success that governments hope to produce. This also applies to the relationship between the Department of Education officials and schools – school autonomy implies reduced requirement for close oversight – and requires a level of trust in the professionalism of all employees. It is important, therefore, that there is “commitment and capacity within the central authority to actually deliver and support meaningful authority and not circumscribe it in such detailed ways that schools gain little benefit” [5].

Improvement outcomes: While a rationale for autonomous schools is to improve student achievement outcomes, there are criticisms that there is insufficient empirical evidence that autonomy alone achieves such ambitions. In 2013 researchers from the University of Melbourne found that: “While it was too soon for Independent Public Schools to demonstrate an effect on student outcomes, the initiative was supporting schools to create the conditions for such improvement”, and that, “In this early phase of the IPS development there is little evidence of changes to student outcomes such as enrolment or student achievement” [4].

These statements provided a glimmer of hope but were dashed somewhat by Hamilton Associates’ 2015 research findings stating that
although governments embark on school autonomy to improve student outcomes, some forms of school autonomy yield greater learning improvements than others. Those focusing on staffing and budgetary autonomy – such as the Independent Public School initiative – are less likely to achieve improved learning standards than models focusing on teacher quality and teacher empowerment (an aspect that was not directly fostered in the Independent Public School scheme at that time). As such, Hamilton Associates reported that the “introduction of the IPS initiative has had no significant effect on the academic or non-academic performance of students” and further, it is “too early to tell whether the IPS initiative has created the conditions which will lead to improved student outcome in the future” [5].

At this stage of the current research, however, there is evidence to suggest that schools operate more effectively when they have and use the services of a qualified school business leader, as reported above.

Professionalization: Managers of Corporate Services in Schools are well aware of the rapid professionalization of their role and positioning in schools (see also [7]). Although requiring longer working hours and more responsibilities, the great majority welcome these moves and appreciate this professionalization. Subsequently, there is also overwhelming support for the need for specific and tailored professional learning and qualification programs targeted at education leaders and school business leaders. Managers of Corporate Services in Schools also observe the pressing need for the professionalization of school boards to ensure they are fully capable of conducting effective governance oversight required of Independent Public Schools.

6. Conclusion

This research project will provide data in an emerging field where there is very little research. This initial project paves the way for further research across the Australian states and territories, including interviews with an expanded list of personnel (departmental officers, school principals and governing school councillors/board members). The project will also provide useful data for a future application for a competitive research grant to conduct nuanced research drawing on its findings. As education business leadership gains credence as a necessary and critical component of education leadership preparation and ongoing professional learning, this research will be the first of its type across the continent.

7. References


Relationship between Principals’ Leadership Attributes and School Effectiveness in Secondary Schools, Nigeria

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Abstract

The success of secondary schools depends on the skills, characteristics and knowledge of leadership obtained by the principal. This stand as a fact on principals’ leadership attributes to be a topic of discussion towards the effectiveness of secondary schools for the past decades, based on the assumption that no school can be successful without effective leadership of the principal. This resulted to the conduction of various researches on such area worldwide. The study examined the relationship between the principals’ leadership attributes and school effectiveness in Niger State secondary schools. It is a survey research, quantitative approach and correlation analysis was used to determine the relationship between the principals’ leadership attributes and school effectiveness in Niger state senior secondary schools, Nigeria. The study includes all the senior and assistant senior masters, which gives the total population of 460. Sample size was 209 and was calculated using the Cochran formula with addition of 30% of the unreturned of which determined the sample size to be 272 and simple random sampling technique was used. Questionnaire was an instrument used for the collection of data; Leader Attributes Inventory (LAI) was used to measure the Principals’ Leadership Attributes and it measure each of the 37 leadership attributes, while School Effectiveness Index (SEI) was used to measure the School Effectiveness and it is made up of 8 items. Both the two instruments were structured questions with positive statements and the options are in Likert type scale. Findings show that there is significant positive high relationship between the principals’ leadership attributes and school effectiveness in Niger state senior secondary schools, Nigeria.

1. Introduction

Principals’ leadership attributes is perceived as an essential variable towards the effectiveness of every secondary schools, right from the goals setting to its means of attainment. It is generally believed that under normal circumstances, where there are no obstructions on the number of teaching staff, number of students from similar background, schools’ rules, an educational institution reprobates or rises to yearning standard with the change of school principal [24].

Principals’ leadership attributes is highly interrelated with the school improvement, school effectiveness and total students’ achievements. Studies have shown that, principals’ leadership attributes is concerned with the overall improvement and effectiveness of the school, and the academic success of every student [10].

Despite the fact, the contemporary educational setup has proven to be the greatest challenge for majority of principals in leading their schools to meet up with the required proficiency levels of student achievements and the general effectiveness of the school [17]. Niger state government have been allocating adequate amount of funds to educational sector in the state, yet the performance of staff and student achievement does not meet up with the yearning aspiration of the parents and the Niger state government. This is rooted from the frequent poor performance of students in the internal promotion examination and eventually leads to the poor performance in WAEC and NECO too. For instance in the year 2007, Niger state students got only 7% whilst in 2008, Niger state students got 18.7% which is extremely poor in terms of students’ achievement (Desert Herald, 2011). Niger state government had paid the sum of #440.4 million for its students who sat for WAEC and NECO in the year 2010/2011 while parents contributed the sum #191.6 million, but the performance of students was not admirable and encouraging. The Commissioner for Education Mrs. Gana said, 17, 550 senior secondary school students in the state have failed their 2011/2012 promotion examination out of the 57,510 registered student (Premium Time, 2012). And that there is general believed that principals are responsible of all what happens in their various secondary schools [1].

Meanwhile, School effectiveness encompasses all the general achievement of students on the three domain of learning such includes cognitive domain, psychomotor domain and effective domain [8], therefore learning the leadership attributes is very imperative for school principals in order to enable them to develop and improve their leadership so as to
meet up with the necessary outcomes of their respective students [17]. With the above evidences of experiences and the literatures energised the researcher to conduct a study on the relationship between the principals’ leadership attributes and school effectiveness in Niger State Secondary Schools, Nigeria.

2. Objective of the study

The objective of this study is to examine the relationship between the principals’ leadership attributes and school effectiveness in Niger State secondary schools, Nigeria.

3. Research Question

Is there any relationship between the principals’ leadership attributes and school effectiveness in Niger State secondary schools, Nigeria?

4. Research Hypothesis

HA: There is a positive significant relationship between the principals’ leadership attributes and school effectiveness in Niger state secondary schools.

5. Methodology

This research is a survey method and it is a quantitative approach which involved 460 populations, sample of 272 was selected from 230 secondary schools and these schools were randomly selected. It has been designed to examine the relationship between the principals’ leadership attributes and school effectiveness in Niger state senior secondary schools. In this context, the study demands a correlation analysis to measure the relationship between the Principals’ leadership attributes with respect to the demographic factor and School effectiveness. The subjects of this research work are principals of Niger state senior secondary schools who have been assessed by the senior and assistant senior masters of their respective schools. Niger state ministry of education provided all the necessary information to the researcher by given the researcher details of the total number of secondary schools to be visited of which determined the population of the study. Questionnaire shows high reliability and validity in measuring the constructs under this study (Cronbach’s alpha = .856).

6. Data Analysis

Conclusively Pearson correlation analysis was conducted between the total principals’ leadership attributes and total school effectiveness, the result indicated that there is strong significant positive relationship between the total principals’ leadership attributes and the total school effectiveness (r = .703, p = .01). A correlation of.5 is half way between 0 and 1 and therefore representing the moderate degree of relationship, while .60 and above is indicating strong relationship [9]. Therefore interpretation of the correlation result of this study is positively high significant, this supported HA which explain that, there is significant relationship between the principals’ leadership attributes and school effectiveness. This findings is line with the opinion of Hallinger, (2005) explain that, many studies highlighted on the association and the relationship between the school principals’ leadership and high school success.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Y (School effectiveness)</th>
<th>X1 (Principal Leadership Attributes)</th>
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<tbody>
<tr>
<td>r</td>
<td>0.703</td>
<td>.856</td>
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</table>

The study aimed to identify the relationship between the principals’ leadership attribute and school effectiveness through teachers’ perspectives. Data collected for the study was analyzed using SPSS software version 22, descriptive analysis was used to calculate the mean, standard deviation frequency, percentage, minimum and maximum of the background of the respondents; which comprises of the age, gender, years of working experience and qualification while correlation analysis was used to determine the relationship between the principals’ leadership attributes and school effectiveness. Below are the tables showing result of the analysis.

7. Discussion

Strong educational leadership has been found to be among the essential characteristic of school effectiveness, most scholars believed that; this leadership is interconnected with the leadership attributes of the principal being the head of the school [2]. The study was set out to investigation the relationship between the principals’ leadership attributes and school effectiveness from the perspective of senior and assistant masters of secondary school. The findings indicated that, there is high positive significant relationship between the dimensions of principals’ leadership attributes and school effectiveness as perceived by the senior and assistant senior masters. This served as evidence that, both the senior and assistant senior masters are familiar with the connection between the principals’ leadership attributes and school effectiveness. With this finding, it may provide bedrock of creating the learning and training techniques that may leads to the
acquisition of such leadership attributes by the school, thus may leads to the improvement of school effectiveness through probable solutions to the contemporary challenges facing the principals [3]. Leaderships attributes are subject to learning, therefore leadership learning environment should be created to equip the school principals with those desirable leadership attributes, because people can learnt to become great leaders [15]. With the provision of the current leadership learning programs to the principals, may serve as one of the measure of improving their leadership skills attributes and knowledge. As regards to the past experience of the researcher that, there were frequent poor performance of the academic achievement which stand as one components of school effectiveness, it may be as a result of the least qualification obtained by the majority of teachers, because the analysis on the background of the respondents indicated that most of the respondent were having Nigeria Certificate in Education (N.C.E.), with about 180 (72.3%) out of the 249 respondents rather than bachelor degree or master degree, which is the required qualification in teaching at secondary schools level [20].

8. Conclusion and recommendations

It can be concluded that, there is significant positive relationship between the principals’ leadership attributes and of school effectiveness in Niger State secondary schools, Nigeria. Despite the fact, it is very pertinent to measure the level of principals’ leadership attributes and school effectiveness in Niger State Secondary Schools, but yet it could not measure in the study.

In Nigerian system of education teachers were given high priority in terms of development training programs while neglecting the escalating responsibilities of the principals, therefore it is very significant to design a learning and development program with the aimed of improving the leadership attributes of school principals [3]. Result of the analysis indicated, there is high positive significant correlation between the four dimension of the principals’ leadership attributes and school effectiveness in Niger state secondary schools. Designing a special program inform of pre-service training for aspiring principals, induction training programs of new principals and In-service training for serving principals by the Niger state government, may serves as means of providing the basic knowledge on educational leadership of which may assist in increasing the level of principals’ leadership attributes and school effectiveness in the state [25]. With high level of leadership attributes prepared the school principals to possess the necessary skills and knowledge of addressing the complex and undefined issues through the knowledge of system thinking, leading learning and self-awareness and thereby overcoming the mandatory challenges in their respective schools.

9. References


Session 33: Educational Foundations

Title: Beyond Anxiety: How Students' Emotions in Statistics Courses Influence Their Learning
(Authors: Somayeh Ghaderizefreh, Michael L. Hoover)

Title: Metrology Education Impediment in Developing Countries Considering the Case of Nigeria
(Authors: S.M. Ibrahim, P. Bills, J.M. Allport)

Title: When Middle School Teachers Meet Teachers across Schools
(Authors: Ajay Pinjani, Aamna Pasha, Ali Bijani, Asad Ali Aslam)
Beyond Anxiety: How Students’ Emotions in Statistics Courses Influence Their Learning

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Abstract

Despite the importance of statistics courses for social science students, many of them find these courses formidable obstacles to the completion of their degrees and report high levels of anxiety about these courses. Understanding the attitudinal factors among students can help instructors improve students’ attitudes toward statistics and their achievement in statistics courses. In this paper, using Pekrun’s control-value theory of achievement emotions, we treat emotions as a central component of students’ attitudes toward statistics and argue that students’ emotions regarding statistics are more complex than simply feeling anxious. We introduce a conceptual model of students’ attitudes toward statistics and describe the data that we are collecting as a preliminary test of the model. Finally the implications of the study will be discussed.

1. Introduction

Statistics is a requirement for social sciences students, providing them necessary skills for understanding, interpreting, and conducting research. However, students often see statistics courses as gatekeepers to the completion of their degrees, and report high levels of anxiety about these required courses [1].

Researchers [2], [3] have argued that for students to succeed, they need to hold positive attitudes toward statistics. Therefore, understanding the antecedents and effects of students’ attitudes toward statistics is important to maintain and increase students’ positive attitudes.

Although attitude plays an important role in statistics achievement and students’ ability to apply statistical knowledge outside the classroom [2], [4], there is not a consensus about the definition of the construct of attitude. Some researchers consider attitudes to be more emotional than cognitive while others consider it to be more like beliefs. However, most believe that attitude is a multidimensional concept referring to positive or negative responses toward statistics. A variety of attitude components (e.g., value, anxiety, fear, cognitive competence, expectancy of success, and interest) have been used to assess the relationship between students’ attitudes toward statistics and their achievement. Schau [5] has argued that there are causal relationships between the attitudes components and statistics achievement that should be represented by a causal model. Researchers have used the results of previous studies, personal teaching experiences, and some theories such Eccles and colleagues’ expectancy-value theory [5] to develop statistics attitude models to describe the relationships between the attitude components and statistics achievement.

Although Eccles et al.’s model has been used in a few studies [6], [7] to examine these relationships, their findings do not always indicate the same path between attitude components and statistics achievement. Furthermore, these studies have argued that the findings do not support all aspects of expectancy-value theory. This indicates that researchers need a rigorous theoretical framework, not only to systemically study students’ attitudes toward statistics, but also to identify predictors of students’ attitudes. In this paper, we argue that Pekrun’s [8] control-value theory of achievement emotions (hereafter, C-V theory) can provide a comprehensive framework to describe and understand students’ attitudes toward statistics.

After a brief review of the literature on students’ emotions regarding statistics, we describe Pekrun’s C-V theory, results from studies that have used C-V theory in related domains such as mathematics, and introduce the model of students’ attitudes toward statistics based on this theory. In addition to introducing the conceptual model, we describe the data that we are collecting as a preliminary test of the model. Finally, the implications of the study for both theory and practice will be discussed.

2. Students’ emotions toward statistics

Recent research has emphasized the importance of academic emotions for achievement outcomes [9]. In particular, these studies have emphasized the critical role of emotions in abstract subjects such as mathematics and statistics. Although most research
on emotions in statistics has focused on anxiety, students’ emotions towards statistics go beyond simply feeling anxious. Pekrun’s [8] C-V theory is a framework that emphasizes the centrality of emotions - both positive and negative emotions - in academic settings. C-V theory argues that students experience domain-specific academic emotions (e.g., toward mathematics or statistics) that affect their learning and achievement. For example, research on emotions in mathematics indicate positive emotions such as enjoyment and pride are positively and negative emotions such as boredom, anxiety, anger, and hopelessness are negatively related to mathematics achievement [10].

By using C-V theory, we treat students’ emotions as an important attitude component that affects their effort and use of learning strategies that in turn affect their statistics achievement. Furthermore, this model allows us to consider teachers’ instructional characteristics as an exogenous variable that affects students’ emotions through both value (whether statistics is seen as interesting or important) and control (whether a statistics learning activity feels in or out of control) appraisals (see Figure 1.)

As a preliminary test of the C-V model for statistics, 60 master students in an introductory statistics course have completed questionnaires at three time points during Fall 2016 (beginning, middle and end of semester). We have adapted a series of scales for statistics courses to measure a) teachers’ instructional characteristics, b) academic control, c) task value, d) students’ achievement emotions, e) the amount of students’ effort to learn statistics, and f) learning strategies (see Figure 1.) Students’ final marks also will be used to assess students’ achievement in statistics. Upon completion of data collection at the beginning of December, these data were analyzed as a series of multiple regressions predicting emotions, effort, strategies and achievement, and these results will be reported at CICE.

3. Conclusion

Results of this research provide a new approach to study students’ attitudes toward statistics using a rigorous theoretical framework. In this paper, achievement emotions are considered to be a central component of the attitudes that influences students’ engagement and achievement in statistics. This study has important implications for determining how statistics instructors can foster positive students’ emotions and decrease negative ones. Consequently, students will be better able to complete their courses successfully and use their statistical knowledge in their professional lives.

4. References


Metrology Education Impediment in Developing Countries Considering the Case of Nigeria

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Abstract

Metrology is practised every day, often unknowingly. It is used in the design and production of almost everything we encounter daily, from the cell phones in our pockets to the walls of our homes. Metrology is everywhere, but metrologists are few and most curricula in technical fields don't even mention the subject. How, then, do metrologists get an education? This paper aims to address metrology education in developing countries, to enhance developing countries' awareness of the significance of metrology education and the need for it to be introduced into universities academic curricula.

Educational institutions in developing countries are found to be generally weak in the area of metrology. To demonstrate the level of metrology education in developing countries, Nigeria has been used as a case study. Research which examined knowledge related to metrology in general, flow and legal metrology was conducted across six Universities. Assessment of the students revealed they substantially lacked the abilities required in all area of metrology knowledge.

Considering the vast benefit of metrology, this paper therefore recommends that the curricula of engineering schools, technical universities and other special training institutes should contain at least some basic courses on metrology. Also recommended is the formation of consortia of institutions comprised of educational institutions, industry practitioners, and regulators. This paper also highlights the requirement for a suitable metrology education for practitioners within statutory bodies.

1. Introduction

Metrology (the science of measurement and it applications) is practised daily in most technical environments. The term is narrowly understood, most often mistaken with the better known term meteorology, referring to the study of weather. The role of metrology is crucial in almost every aspect of modern society, although not always recognized as such. It is used in the design and production of almost everything we encounter daily, from the cell phones in our pockets to the walls of our homes. Fields where measurement plays an evident role are, for instance, medical and health care, transport, commerce and industry, production and factory management, communication and navigation. Some aspects of metrology concern the establishment of quantity systems, unit systems and units of measurement; the development of new measurement methods; realisation of measurement standards and the transfer of traceability from these standards to users in society. Others cover the application of measurement science to manufacturing and other processes and their use in society [1], while yet others are concerned with applying regulatory structure and enforcement to metrology [2]. Some practitioners design measurement systems or instruments. Others perform calibrations. Still others do basic research into underlying scientific principles. Considering the large variety of applications in the field, one can imagine how broad the subject matter is.

Metrology is everywhere, but specialist metrologists are few and most curricula in technical fields don't even mention metrology. How, then, do metrologists acquire an education? Many years ago, the George Washington University partnered with the National Bureau of Standards (now the National Institute of Standards and Technology or NIST) to offer graduate programs in metrology, but today, such programs are no longer available [3]. The International Committee for Weights and Measures [4] revealed that, in many countries, there is inadequate provision for teaching in metrology at every level of the educational system: schools, technical colleges and universities. Metrology often has to be “learned on the job”. The International Committee for Weights and Measures [4] thus laid emphasis on training as an important issue that needs to be addressed nationally. However, what must be taken into consideration is that the teaching personnel need to be educated before effective training can take place. Establishment of new metrology systems in newly independent countries needs special education for the professionals involved in the process. Accredited bodies or personnel of calibration services must have some understanding of calibration, quality standards, regulation, laws and the benefits of them to the society at large. All of this requires some level of education. Also, from ancient times, the control of Weights and Measures (Legal Metrology) via legal routes to ensure fair transactions and accurate
measurements has been considered as an essential duty of a nation. Thus the legal metrology systems need highly skilled professionals in metrology. However, as found in the study of Mason [5], the problem of shortage and inadequacy of qualified personnel in metrology has been a general problem that is hindering the progress of many developing countries. He therefore recommended nation to nation training, that is, nations that are most advanced in metrology provide significant training to those that are less advanced. Paradoxically, while it is necessary to use expertise acquired from abroad, it is not usually possible to transfer metrological methodology from the developed countries in a successful manner without the developing countries having a fundamental understanding of metrology. This paper considers with particular interest, metrology education in developing countries with the aim of enhancing developing countries’ awareness of the significance of metrology education and the need for it to be introduced into university level academic curricula. Since metrology evolves in line with scientific and technological advances, it is necessary to create awareness of the need to introduce metrology curricula into those scientific and technical fields in the universities, most especially in the developing world. This is particularly important with the increased emphasis on the equivalence of measurement and testing services for quality of life, environmental protection and trade. This paper will also provide background information on educational institutions offering metrology programs or classes in developing countries.

2. Metrology Education in Developing Countries

Educational institutions in developing countries are generally weak in the area of metrology. Table 1 shows visually the limited number of educational institutions that offer metrology programs or classes and the country in which they are located within the developing countries. Over 92% of the developing countries [6] have no single institution that offers metrology courses. Considering the vast benefit of metrology depicted by Birch [7], metrology is a unique program that needs to be incorporated into schools, technical colleges and universities academic curricula. Yet, the prosperity of this knowledge has not been evenly spread throughout the world. There remain considerable differences between and within regions, countries and societies. Too often, lack of metrological education has left significant segments of the countries affected behind. This is particularly so in the case of Nigeria.

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<tr>
<th>Countries</th>
<th>Educational Institution</th>
<th>Metrology Program</th>
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<tbody>
<tr>
<td>BRAZIL</td>
<td>Instituto de Pesquisase Estudos Industriais (IPEI)</td>
<td>Institute of Industrial Research and Studies</td>
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<tr>
<td>CHINA</td>
<td>University of China Metering, Hangzhou</td>
<td>Metrology and Measurement Engineering</td>
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<td>KOREA</td>
<td>University of Science and Technology(UST)</td>
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<tr>
<td>MEXICO</td>
<td>The Center for Engineering and Industrial Development (CIDESI)</td>
<td>Postgraduate Metrology Programs</td>
</tr>
<tr>
<td>MOROCCO</td>
<td>Universidad Politécnica de Santa Rosa Jáuregui</td>
<td>Engineering Industrial Metrology</td>
</tr>
<tr>
<td>RUSSIA</td>
<td>Nosov Magnitogorsk State Technical University</td>
<td>Master in Engineering - Standardization and Metrology</td>
</tr>
<tr>
<td></td>
<td>Siberian State Aerospace University</td>
<td>Standardization and Metrology</td>
</tr>
<tr>
<td>THAILAND</td>
<td>King Mongkut’s University of Technology Thonburi (KMUTT)</td>
<td>Industrial Metrology Program</td>
</tr>
<tr>
<td>TANZANIA</td>
<td>College of Business Education, Dar Es Salaam</td>
<td>Basic Technician Certificate in Industrial and Legal Metrology</td>
</tr>
<tr>
<td>UKRAINE</td>
<td>LIVIV polytechnic University</td>
<td>Bachelor in Metrology and Information-measuring Engineering</td>
</tr>
<tr>
<td></td>
<td>National Technical University of Ukraine: Igor Sikorsky Kyiv Polytechnic Institute</td>
<td>Metrology and Information-Measurement Engineering”</td>
</tr>
<tr>
<td></td>
<td>National Technical University: Kharkiv Polytechnic Institute</td>
<td>Metrology and Information and Measuring Equipment</td>
</tr>
</tbody>
</table>
3. Metrology in Nigeria

To demonstrate the level of metrology education in developing countries and/or metrology knowledge among the students, Nigeria has been used as a case study.

The oil and gas industry is the main source of Gross Domestic Product (GDP) in Nigeria with about $8 billion spending annually in servicing the industry, with the figure projected to hit $15 billion in next few years according to Omenikolo & Amadi [10]. Despite the huge sums of money spent on this industry, the Nigeria Extractive Industry Transparency Initiatives [11, 12 and 13] audit report reflected insufficient measurement control across the sector. Since the degree of development of metrology in a country also reflects the stage of development of that country's industry according to Zaimović-Uzunović and Lemeš, [14], execution of the measurement in the sector by non-experts in metrology or lack of metrological knowledge by the designated bodies in charge of the supervision of the measurement activities could lead to insufficient measurement control. Taking into consideration the metrological knowledge required for effective measurement control to be achieved in the sector and the recruitment criteria of the bodies in charge of the measurement control of this industry (which include: the oil and gas operators; the DPR (Department of Petroleum Resource) which is the body charged with the legal responsibility of regulating, monitoring and supervising the measurement activities in the industry; and the Weights and Measures Bureau, the body bestowed with the responsibilities of supervising and ensuring accurate calibration and certification of measuring devices used for custody transfer measurement system and type evaluation and verification of all the measurement devices) [15, 16] the knowledge gaps of the students were evaluated on the area of general, legal and flow metrology. This was to evaluate the capability of tomorrow’s professionals relative to the metrological knowledge necessary to form stronger metrology bodies capable of maximising the economic recovery of Nigeria oil and gas through sufficient measurement control.

The research has been conducted across six universities with the survey population of the study made up of students from engineering and science disciplines. The research examined knowledge required in basic, flow and legal metrology by intensive investigation through interviews and questionnaires. The scope of the interview and the questionnaires comprised metrological knowledge that will enable new graduates to make productive contributions to the industry.

The interviews were designed to confirm the extent of the students’ fundamental knowledge of metrology. Since the oil and gas industry is a major user of flow measurement, flow metrology was also incorporated into the questionnaire. The area covered concentrated on custody transfer measurement systems because, in custody transfer, measurement accuracy is extremely important according to Dupuis [17] as errors in measurement for custody transfer can be extremely expensive, even a small error in measurement can amount to large financial differences. Hence some of the metrological skills necessary for the oil and gas custody transfer measurements were incorporated into the questionnaire. Questions on Weights and Measures were included, as this department is the national legal metrology responsible body in charge of inspecting and verifying the measuring devices in the sector. The views of 1017 students of science and engineering disciplines were obtained through institutional visits, where 25% of the students were in 500 level, 35% 400 level, 30% 300 level and 10% 200 level. The results of the interview and questionnaires were analysed using univariate descriptive statistics and the reflection of the self-assessment and assessment of the students with respect to their knowledge gap in metrology are shown in Table 2 and Figure 1 below.

![Figure 1. Knowledge gap of the students](image)

Self-assessment and assessment of the students reveals they all substantially lacked the abilities in all the aspects of metrology examined. Familiarity with legal metrology is below 1%. At present, based on the survey results, Nigerian Universities cannot produce graduates suitable for metrological development. Courses specialising in metrology have never been offered at either undergraduate or postgraduate levels. With the research outcome, one can deduce that the insufficient measurement control Nigeria is facing within its petroleum industry is due to the fact that most of the bodies in charge of the sector are insufficiently trained or experienced in metrology.
### Table 2. Interview and questionnaire results

<table>
<thead>
<tr>
<th>Please take a critical look at the listed educational knowledge and skills and choose from the options base on your knowledge and skill level.</th>
<th>Unknowledgeable</th>
<th>Somewhat Knowledgeable</th>
<th>Knowledgeable</th>
<th>Total Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Comprehensive understanding of the term metrology</td>
<td>991</td>
<td>12</td>
<td>12</td>
<td>1017</td>
</tr>
<tr>
<td>2. Full knowledge of the benefit of metrology</td>
<td>982</td>
<td>19</td>
<td>19</td>
<td>1017</td>
</tr>
<tr>
<td>3. Comprehensive understanding of the categories of metrology</td>
<td>990</td>
<td>13</td>
<td>13</td>
<td>1017</td>
</tr>
<tr>
<td>4. Knowledge of industrial and scientific metrology and their field aspect</td>
<td>991</td>
<td>13</td>
<td>13</td>
<td>1017</td>
</tr>
<tr>
<td>5. General knowledge of legal metrology and the benefit to the society</td>
<td>101</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>6. Basic knowledge of legal metrological control</td>
<td>101</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>7. General knowledge of measurement uncertainty</td>
<td>981</td>
<td>20</td>
<td>20</td>
<td>1017</td>
</tr>
<tr>
<td>8. Knowledge of traceability of standards</td>
<td>990</td>
<td>13</td>
<td>13</td>
<td>1017</td>
</tr>
<tr>
<td>9. Knowledge of the term calibration and why calibrate</td>
<td>100</td>
<td>9</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>10. Differences between verification and calibration</td>
<td>101</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Principles and practice of flow measurements</td>
<td>942</td>
<td>67</td>
<td>47</td>
<td>1017</td>
</tr>
<tr>
<td>12. Oil and gas custody transfer measurement system</td>
<td>969</td>
<td>33</td>
<td>33</td>
<td>1017</td>
</tr>
<tr>
<td>13. Legal metrology requirements of oil and gas custody transfer measurement</td>
<td>100</td>
<td>8</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>14. Fiscal oil measurement uncertainty requirement</td>
<td>990</td>
<td>15</td>
<td>15</td>
<td>1017</td>
</tr>
<tr>
<td>15. Fiscal gas measurement uncertainty requirement</td>
<td>979</td>
<td>19</td>
<td>19</td>
<td>1017</td>
</tr>
<tr>
<td>16. How to inspect and verify gas measurement systems</td>
<td>991</td>
<td>15</td>
<td>15</td>
<td>1017</td>
</tr>
<tr>
<td>17. How to inspect and verify liquid measuring systems</td>
<td>990</td>
<td>14</td>
<td>14</td>
<td>1017</td>
</tr>
<tr>
<td>18. How to inspect and verify bulk storage measurement systems</td>
<td>992</td>
<td>13</td>
<td>13</td>
<td>1017</td>
</tr>
<tr>
<td>19. Sources of error and mismeasurement within metering systems</td>
<td>981</td>
<td>24</td>
<td>24</td>
<td>1017</td>
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<tr>
<td>20. Reference standards commonly used in the oil and gas industry for petroleum measurement</td>
<td>942</td>
<td>77</td>
<td>29</td>
<td>1017</td>
</tr>
</tbody>
</table>

### 4. Recommendations

Metrology education is important to developing countries for their economy and for attracting investments. Unfortunately, educational institutions in developing countries are generally weak in the area of metrology. While it is necessary to use expertise acquired from abroad as recommended by Zaimović-Uzunović & Lemeš [14] and Mason [6], developing countries must also make an effort to integrate metrology programmes into their academic curriculum.

In order to have manpower experienced in scientific, industrial and legal metrology to keep pace with the needs of industry and society, every country must have a well-established metrology system with adequate metrology training centres, specialized educational institutions and, of course, formal metrology education at technical school and university levels. Alternatively, the curricula of engineering schools, technical universities and other special training institutes should contain at least some basic courses on metrology. To facilitate this, consortia of institutions comprised of educational institutions, industry practitioners, and regulators also need to be formed.

Since before the field of metrology can advance in line with the growth in a particular branch of industry, it is necessary to provide the appropriate personnel [14], developing countries must also make an effort to penetrate the domain of metrology program. The program should consists of compulsory courses covering fundamental skills and knowledge about metrology; general courses dealing with more specialised and advanced topics; and elective courses where students are able to choose the courses which suit their professional needs. These will define the requirement for a suitable metrology education.

### 5. Conclusions

This paper portrays the weakness of metrology education in developing countries. The metrological knowledge assessment carried out across the universities in Nigeria, which was used as a case study, gives clear evidence of the level of the weakness. Thus, with the significance of metrology to national development, it is imperative for educational institutions in developing countries to add metrology into their academic curricula.

### 6. References


When Middle School Teachers Meet Teachers across Schools

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Aga Khan University, Pakistan

Abstract

This paper explores the strengths and limitations of a professional development exercise (Annual Teacher Meetings) in which teachers of different schools come together to Aga Khan University Examination Board’s Middle School Programme (MSP), held across different regions of Pakistan among its partner schools. In total thirty seven schools participated and fourteen Annual Teachers Meeting sessions were conducted in five different cities across the country. All sessions were facilitated by teacher development personnel with the following aims: developing an enriched understanding of the process of project implementation; sharing successes and challenges faced during the process in their context; strengthening understanding of competency assessment; nurturing an environment of constructive feedback and encouraging a culture of sharing among teachers. The data was gathered through mixed method, including a questionnaire and observation by four trainers who conducted these meetings across the country. Every session concluded with feedback from participants about the structure and significance of the session. The data gathered demonstrated that participants observed such platforms meaningful for sharing good practices from project implementation, and enhancing the understanding of competencies and its assessment. The observation by trainers also highlighted the strengths and limitations. The significance of originality was agreed upon as an essential element by all participants. Through project review exercise participants engaged in providing constructive feedback highlighting both areas of improvement and aspects they would like to emulate next year. This meeting also broadened teacher’s perspective regarding other contexts and provided a safe space to share misconceptions. However it was observed that accepting feedback from other schools was challenging for teachers and stereotypes existed regarding the extent to which they were likely to learn from schools to share from others that were from dissimilar socio economic class.

1. Introduction

Understanding the Pakistani Educational Landscape a home to more than 201 million people ("The World Factbook"), Islamic Republic of Pakistan is the world’s 6th most populous country. It is mandated in the Constitution of Pakistan for the state to provide free and compulsory education to all children between the ages of 5 and 16. Over the years, Pakistan has joined many key organizations such as the Education For All (EFA) commitment to set targets for the education sector (Hussain, 2015). Unfortunately, it is still lagging behind its Millennium Development Goals (MDGs). The literacy rate in Pakistan is close to 58% where male literacy is approximately 70.2% while female literacy is only 46.3% where being literate is defined as the ‘ability to read and understand a simple text in any language’ and the ability to ‘write a simple letter and perform basic mathematical calculation’ (Sheikh, 2017). In the recent years, government has also made inconsistent attempts to increase computer literacy. However, currently only 17% of the population of Pakistan is actually online (Peña-López, 2016). “Low literacy, difficult economic conditions, and cultural resistance have limited the proliferation of ICTs in Pakistan.” (Pakistan Country Report 2015).

To escape the poor quality of public schools, children from middle and lower-middle class are increasingly being sent to second-tier private schools charging moderate fee. These schools, while claiming to be English medium, adopt a mix of languages to teach their students. The linguistically diverse Pakistan has a total of as many as 70 living languages. The national language is Urdu, which is often the second or third language of a large majority of the population. Teachers preferably use their mother tongue or the common language spoken in the region to teach the concepts written in English in the state textbooks. The children are expected to memorize and reproduce what is written in the text book. The result of adopting this outdated pedagogy is that the learning outcomes of students throughout Pakistan are weak. Pakistan’s children score poorly in reading and mathematics across all provinces ("The State of Education in Pakistan", n.d.). Additionally, the teachers in private schools are not better qualified than government school teachers. The average teacher of private schools scored 62% compared to 56% scored by a public school teacher on the APTIS test in 2013.
2. Middle School Programme, Aga Khan University-Examination Board

In the Pakistani educational system, schools conduct their own examinations and promote students from one grade to the next until Grade 8. Grade 9 onwards, students appear for external examinations that take place either at a provincial or federal level and award certification for the same. There are 27 boards operational at regional levels alongside 2 international boards that offer examinations at the secondary and higher secondary level. While the international boards are costly, local boards grapple with issues of fairness and reliability. The Aga Khan University Examination Board is Pakistan’s first private autonomous national examination body established by the Aga Khan University in August 2003 in accordance with Ordinance CXIV of the Government of Pakistan. The need for its establishment was felt in light of the lack of affordable, transparent and fair assessments at the secondary (SSC) and higher secondary (HSSC) school certification level. AKU-EB's primary purpose is to improve the quality of education by providing high quality examinations across the country in accordance with the National Curriculum of Pakistan. AKU-EB enrolls students from diverse geographic ethnic, religious and socio economic backgrounds and places emphasis on concept based learning. Students are assessed on their understanding and application of knowledge. There is a focus given to encourage teaching and learning to move away from rote memorization towards, deeper understanding of concepts and the development of higher order cognitive skills. Recognizing the struggle of students and teachers to teach for higher cognitive levels and the dependence on traditional teaching methodologies, a Middle School Programme (MSP) was conceptualized. The purpose of the programme is twofold: the first is the enrichment of content based learning by offering interdisciplinary, experiential learning programmes; the second is the development of a wide range of competencies by offering a broad based foundation of educational experience. This is premised on the awareness that students of today need to be prepared to thrive in a world that is consistently changing. Together, the vision was to help develop lifelong learners by encouraging students to approach learning differently, recognize linkages across disciplines and move from conceptual knowledge to understanding and application. Each school opting for Middle School Programme receives a set of six interdisciplinary projects for each grade. These project tasks are designed by AKU-EB and are based on middle school syllabi drawn from the National Curriculum of Pakistan. Schools opt for any 4 projects, to be completed in one academic year, that align with their syllabi. Teachers assess the academic quality of students’ project work and the competencies demonstrated in task completion using a standard rubric developed by AKU-EB. Teachers of all schools affiliating with AKU-EB for the programme are provided orientation training at the beginning of the academic year to familiarize their teachers on project implementation and competency assessment.

2.1. Objective of the Annual Teacher Meeting

The professional development intervention that we wanted to design needed to enhance teachers understanding of the Middle School Programme. This was a twofold task: strengthening teachers’ implementation of project based learning and enhancing their understanding of competency assessment. Given that project based learning was a new pedagogy for a majority of teachers in Pakistan, we anticipated gaps in implementation. Additionally, we recognized that understanding of what competencies are and how they are assessed would be challenging for teachers as the use of a rubric is also a relatively new form of assessment. This realization was heightened during the orientation of teachers to the programme and throughout the year while offering ongoing support. The second core aim was therefore to further develop their skill of observational assessment. Aside from the programmatic intent, the teacher development team recognized that in order to continue to improve and enhance the projects developed and to ensure that the optimum opportunity for competency development was being provided, we are informed of the challenges experienced. Given the multiplicity that exists from one school to another in Pakistan, in terms of resource availability, teacher proficiency, acceptability of new methodology and student readiness we felt it important to cognize the challenges that could further enrich our support to the schools. Lastly, we recognized that in Pakistan limited opportunity exists for teachers to meet teachers of other schools and to look at the work of students that they do not directly teach. We wanted to take the first step to developing a culture of sharing amongst schools across diverse contexts.

2.2. Structure of the Annual Teacher Meeting (ATM)

In order to achieve the objectives above, it was decided that three schools be invited together to an ATM. Bringing schools together was seen to offer multiple benefits; foremost, it would allow teachers to come together to share their students work and network with each other. Secondly, it would provide the platform for teachers to share their experiences and challenges with each other. A larger number of schools were not selected as what was essential was
that the group size allows participation and sharing and the opportunity to see each other’s students work in depth. A project review exercise was designed to meet the objective of having teachers look at student work from other schools. In order to improve teachers understanding of competencies a number of clips of students working on a single project were enacted and recorded. These videos were displayed and teachers were asked to use the rubric to score the three students appearing in the videos. The variations in the scores are then shared and discussed to further enhance their understanding of the competencies and their observational skills.

3. Methodology and Results

At the end of each Annual Teacher Meeting, participants from all schools submitted their anonymous feedback on the meeting. They were given a feedback form containing qualitative and quantitative questions to evaluate the meeting in terms of its objectives, structure, trainer’s effectiveness, content quality and other facilities. In addition the observation of the 4 trainers who executed the ATMs individually shared their observation on the ATM which was later analyzed through open coding. Overall, 14 ATMs were conducted in 5 different cities. A total of 241 participants including teachers, coordinators and principals from 37 schools across Pakistan gave their feedback in the Annual Teacher Meetings (ATMs) conducted for the Middle School Programme 2015-2016. They were asked if the ATM helped them to better understand the Middle School Programme. 66% of the teachers said that the meetings successfully built up on their knowledge of the MSP while remaining 34% felt it was ‘somewhat’ or at least ‘a little’ helpful (see Figure 1).

The participants were excited to see other schools, observe their work and interact with them in a highly engaging environment (see Figure 2).

When asked if they were able to take away any learning from the way other schools implemented their projects, the response was varying. As Figure 3 below demonstrates, more than 50% of the teachers felt they were ‘somewhat’ able to learn from the implementation of projects by other schools. The remaining participants either learned a lot or too little.

![Figure 1. The value of meeting to better understand the Middle School Programme](image1.png)

The participants were also asked if they found the meeting engaging. 50% of the participants said that the meeting was ‘very’ engaging. Another 42% also found the meeting ‘somewhat’ engaging. Overall, the trainers’ observed that the structure of the ATM provided a unique opportunity of focused group interaction with teachers from other schools. Additionally, gaps in implementation were
recognized through an exchange of experiences which was enriched by the structure of the ATM. AKU-EB became a facilitator in such a setting rather than an influential expert. This had another advantage of providing a safe space to share misconceptions. Teachers seemed to be more comfortable to open up with other teachers outside of their school. This could be because often there is a strong hierarchy that exists within schools. Teachers are unable to share problems with their coordinators or school principal due to fear of being questioned on their capabilities or fear of being reprimanded for mistakes made. Meeting teachers brought forward a lot of queries and challenges which may not have been shared otherwise. Additionally, teachers received exposure of broader perspectives by meeting those outside of their school. When using visual aids to clarify understanding of the rubric, some teachers’ observation was coloured by the context in which they worked which was interesting for both the trainer and other teachers. This also allowed the Teacher Development team to become aware of the common and contextual challenges of project implementation. Very interestingly, with regard to student work, the significance of originality (student’s own work) and competency development was accepted regardless of contextual limitations. Two other interesting observations surfaced from the meeting. It was noticed that teachers showed substantial resistance when teachers from other schools gave feedback on implementation of projects after the project review exercise. Teachers were less receptive of constructive feedback. This could be because such a platform and exercise, teachers have not been exposed to before. It was also noticed that a culture of competition and socio-economic divide influenced the way in which schools perceived one another. On occasions some schools shared pre-conceived assumptions, making statements that they do not expect to learn much from a school due to their socio economic background, size or years of establishment. This mindset is essential to shake and could explain the resistance to feedback as mentioned earlier.

4. Discussion

These meetings initiated discussions that the teacher development team is keen to further explore. We learnt that creating a safe space for teachers plays an instrumental role in bringing forth misconceptions and true opinions of teachers. Although it was challenging to accept critique from participating schools, the meeting did act as the first step towards developing a culture of sharing. We believe that as this culture strengthens it is likely that stereotypes that exists across schools will also decrease and the value of participating in constructive dialogue will be widely acknowledged. It was also recognized that more professional development and capacity building initiatives are required to assist teachers in comprehending and practicing the role of a facilitator, leaving the comfort zone of instructive classes aside.

5. Acknowledgements

The authors would like to thank Misbah Jawed for her invaluable assistance throughout.

6. References


Session 34: Higher Education

Title: A Descriptive Analysis of Master’s Degree Programs in Adapted Physical Education in the United States of America
(Autors: Jiabei Zhang, Kristal Wheaton, Amanda Rapelje, Christopher Farr, Kristin Cowell, Zezhao Chen)

Title: To Investigate the Learning Approaches of Chinese Nursing Students: Cross Sectional Study
(Author: Anson C.Y. Tang)

Title: Faculties’ Research Effectiveness in Nigerian Universities
(Author: Onyemachi Elsie Opuruiche)
A Descriptive Analysis of Master’s Degree Programs in Adapted Physical Education in the United States of America

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Abstract

Master’s degree programs in adapted physical education (APE) are offered in many universities in the United States of America. A study is needed to analyze primary similarities and differences among their programs of study. The purpose of this study was to analyze all programs of study for master’s degrees in APE. All such programs of study were downloaded from related websites and their data about program characteristics were identified and collected. All courses specified in each program of study were then coded into one of these four components: core, professional, elective, and capstone. The courses in each component were grouped. The mean of credit hours for all programs of study, the mean credit hours in each component, and the percentage of each course group, were calculated. The results obtained in this study resulted in a descriptive profile of APE master’s degree programs with multiple characteristics and course groups. It is clear that this profile is useful for professionals to develop and revise an APE master’s degree program.

1. Introduction

A master’s degree is a type of graduate academic degree earned after the completion of an undergraduate academic degree. It is granted to people who have undergone study demonstrating a mastery level of competencies in a specific field of professional practice. The demonstration of this mastery level of competencies is documented through the completion of a list of courses specified in the program of study [1] [2]. A master’s degree in adapted physical education (APE) is thus awarded to a person upon graduation from a university by completing a program of study in the area of APE.

The master’s degree program in APE was first initiated in the 1970s [3] [4]. In the 1970s, APE leaders believed that specialized training in APE should be designed primarily for the graduate level, which was based on their belief that APE teachers should have a strong background and in-depth training in the liberal arts and in regular physical education. Ersing and Wheeler [5] did a survey of APE professional preparation. The results of this survey showed that 24 in 178 universities offered programs of study to prepare APE teachers. These programs of study were developed based on professional competencies.

Over the years 1971-1972, a nationwide effort to develop the competencies for APE teachers occurred [3]. It resulted in that a list of competencies needed for delivering APE service was tabulated into six categories (i.e., biological, sociological, psychological, philosophical, assessment, and curriculum). In each category, sub-categories were created. In each of these sub-categories, multiple specific competencies were then developed. Since then, the APE competencies have been extensively developed. Therefore, the competencies developed from 1971-1992 have been revised and updated (e.g., Adapted Physical Education National Standards [APENS]) [6].

APENS were developed in 1995. These standards were revised over the years 2003-2006 to reflect current knowledge and practice in the APE field [6]. A total of 15 standards were presented, including human development, motor behavior, exercise science, measurement and evaluation, history and philosophy, curriculum theory and development, unique attributes of learners, assessment, instructional design and planning, teaching, consultation and staff development, student and program evaluation, continuing education, ethics, and communication. Multiple and specific competencies for APE teachers were then developed for each of the 15 standards. These standards have been infused in APE training programs [6] that are currently offered in the nation.

Zhang, Rapelje, Farr, Cowell, and Chen [7] found that based on an online search result, a total of 31 colleges and universities in the nation are currently posting their programs of study for a master’s degree or equivalent in APE. These programs of study require each accepted student to have an
undergraduate degree (e.g., BA and BS) and to complete a certain amount of credit hours (e.g., 33) of coursework in different components (e.g., core, professional, elective, and capstone courses) within a designated period of time (e.g., 2 years). As these programs of study were developed based on APENS, similarities between these programs of study can be identified, while differences among these programs of study exist as well [2].

What are the primary similarities and differences among these programs of study for a master’s degree in APE in the United States of America? Can a descriptive profile be developed based upon the programs of study posted online? The review of APE research literature revealed that the primary similarities and differences have yet to be identified and a descriptive profile has yet to be developed. The purpose of this study was to identify the primary similarities and differences and to develop a profile based on multiple variables in the programs of study for APE master’s degrees offered in the United States of America. The multiple variables being studied include the program names, type of degrees, credit hours, characteristics of the programs, course groups in the program components, and the top specific courses in each course group.

2. Method

Two lists of APE professional preparation programs posted on webpages by the National Consortium for Physical Education and Recreation for Individuals with Disabilities [8] and PE Central [9] were used as primary sources to identify all APE master’s degree programs offered in the nation. The program of study for a master’s degree in APE or equivalent for each of the identified programs was then searched and downloaded as the raw data source.

The primary information is operationally defined as basic characteristics demonstrated by the downloaded programs of study. These basic characteristics referred to the university location; the professional name; the type of degree; the number of credit hours; whether a program of study awards an APE endorsement, includes research courses, offers elective courses, and teaches courses online; and whether the program requires students to complete a research project, field practicums in APE, and a comprehensive exam. These characteristics were identified from each of the downloaded programs of study and were then summarized.

The coding components refer to different parts of the downloaded programs of study. Coding components are defined as descriptive phrases developed for analyzing different parts of programs or contents of documents [10] [11]. Based on the structure of the program study in APE [12], a total of four phrases were identified as the coding components for analyzing each of the programs of study. The four phrases were categorized as follows: (a) core courses, (b) specialization courses, (c) elective courses, and (d) capstone courses.

A core course is defined not only as a required course in the APE program, but also as required course in other programs of study (e.g., research methods). A specialization course is defined as a course that is required only for students in APE (e.g., assessment in APE). An elective course is defined as a course that is selected by students in APE from another area (e.g., behavior analysis in special education). A capstone course is defined as a course that is designed to provide opportunities for students to integrate knowledge from the core and specialization courses in professional research and practice (e.g., field experience).

All downloaded programs of study were coded using a Coding Sheet for All Programs of Study for Master’s Degrees in APE. The sheet was designed for coding each program of study into four categories. Two individuals completed the coding activity independently. One individual coded all downloaded programs of study, while another individual coded 50% of all downloaded programs of study. Neither individual had knowledge of the other’s coding activity.

The courses coded into a category were then grouped based on their similarities. In the category of core courses, 5 groups were formed, including (a) research methods, (b) statistics, (c) seminar and research, (d) independent studies, and (e) psycho-social foundation. In the component of specialization courses, 3 groups were formed, including: (a) adapted physical education, (b) kinesiology, and (c) special education. In the category of elective courses, eight groups were formed, including: (a) kinesiology, (b) therapy, (c) special education, (d) psycho-social classes, (e) adapted physical education, (f) general education, (g) research and statistics, and (h) not specified. In the category of capstone courses, 4 groups were formed, including: (a) project and/or thesis, (b) practicum and/or field experience, (c) comprehensive examination, and (d) no capstone requirement.

The reliabilities for completing both coding activity and data grouping completed by two independent persons were estimated based on an inter-observer agreement method. A reliability coefficient was calculated with the agreement method, in which the number of agreements was divided by the number of agreements plus disagreements and then multiplied by 100 [15]. The descriptive statistics, frequency and percent, were calculated for each of the categories and groups.
3. Results

The results obtained in this study indicate that 31 colleges and universities currently offer master's degrees in APE or equivalent programs of study and post their programs of study online (see Table 1). These colleges and universities are located in 20 states, including CA, CT, GA, HI, IL, IN, LA, MI, MN, NC, NE, NM, NY, OH, OR, PA, TX, UT, VA, and WI. Of the 31 colleges and universities, 23 (74%) name the programs of study as APE (see Table 2) and 17 (55%) award a Master of Science (see Table 3).

Table 1. Colleges and Universities Currently Offering Graduate Programs for Master's Degrees or Equivalents in the United States of America with Their Programs of Study Available Posted Online

<table>
<thead>
<tr>
<th>Sequence #</th>
<th>Names of Colleges and Universities</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>California State Polytechnic University, Pomona</td>
<td>CA</td>
</tr>
<tr>
<td>2</td>
<td>California State University, Chico</td>
<td>CA</td>
</tr>
<tr>
<td>3</td>
<td>California State University, Long Beach</td>
<td>CA</td>
</tr>
<tr>
<td>4</td>
<td>California State University, Los Angeles</td>
<td>CA</td>
</tr>
<tr>
<td>5</td>
<td>Bridge Water State University</td>
<td>CT</td>
</tr>
<tr>
<td>6</td>
<td>University of Georgia</td>
<td>GA</td>
</tr>
<tr>
<td>7</td>
<td>Georgia State University</td>
<td>GA</td>
</tr>
<tr>
<td>8</td>
<td>University of Hawaii at Manoa</td>
<td>HI</td>
</tr>
<tr>
<td>9</td>
<td>Northern Illinois University</td>
<td>IL</td>
</tr>
<tr>
<td>10</td>
<td>Indiana University</td>
<td>IN</td>
</tr>
<tr>
<td>11</td>
<td>Louisiana Tech University</td>
<td>LA</td>
</tr>
<tr>
<td>12</td>
<td>Southeastern Louisiana University</td>
<td>LA</td>
</tr>
<tr>
<td>13</td>
<td>Eastern Michigan University</td>
<td>MI</td>
</tr>
<tr>
<td>14</td>
<td>Michigan State University</td>
<td>MI</td>
</tr>
<tr>
<td>15</td>
<td>Western Michigan University</td>
<td>MI</td>
</tr>
<tr>
<td>16</td>
<td>Minnesota State University, Mankato</td>
<td>MN</td>
</tr>
<tr>
<td>17</td>
<td>St. Cloud State University</td>
<td>MN</td>
</tr>
<tr>
<td>18</td>
<td>University of Minnesota</td>
<td>MN</td>
</tr>
<tr>
<td>19</td>
<td>East Carolina University</td>
<td>NC</td>
</tr>
<tr>
<td>20</td>
<td>University of Nebraska at Kearney</td>
<td>NE</td>
</tr>
<tr>
<td>21</td>
<td>University of New Mexico</td>
<td>NM</td>
</tr>
<tr>
<td>22</td>
<td>State University of New York, Brockport</td>
<td>NY</td>
</tr>
<tr>
<td>23</td>
<td>State University of New York-Cortland</td>
<td>NY</td>
</tr>
<tr>
<td>24</td>
<td>Ohio State University</td>
<td>OH</td>
</tr>
<tr>
<td>25</td>
<td>University of Toledo</td>
<td>OH</td>
</tr>
<tr>
<td>26</td>
<td>Oregon State University</td>
<td>OR</td>
</tr>
<tr>
<td>27</td>
<td>Slippery Rock University of Pennsylvania</td>
<td>PA</td>
</tr>
<tr>
<td>28</td>
<td>Texas Woman's University</td>
<td>TX</td>
</tr>
<tr>
<td>29</td>
<td>University of Utah</td>
<td>UT</td>
</tr>
<tr>
<td>30</td>
<td>University of Virginia</td>
<td>VA</td>
</tr>
<tr>
<td>31</td>
<td>University of Wisconsin-La Crosse</td>
<td>WI</td>
</tr>
</tbody>
</table>

As presented in Table 2, the mean of the total credit hours over the 31 programs of study is 34 with a range from 30 to 37. The mean of the credit hours in the category of core courses is 5 with a range from 0 to 6. The mean of the credit hours in the category of specialization courses is 18 with a range from 12 to 24. The mean of the credit hours in the category of elective courses is 5 with a range from 0 to 17. The mean of the credit hours in the category of capstone courses is 6 with a range from 3 to 12.

Table 2. Frequencies and Percentages of Different Professional Names Used in the Programs of Study

<table>
<thead>
<tr>
<th>Names Used in the Programs</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapted PE</td>
<td>23</td>
<td>74%</td>
</tr>
<tr>
<td>Adapted PA/Activity</td>
<td>4</td>
<td>14%</td>
</tr>
<tr>
<td>Adapted Physical Activity</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td>Special PE</td>
<td>2</td>
<td>6%</td>
</tr>
</tbody>
</table>

Table 3. Frequencies and Percentages of Different Types of Degrees Used in the Programs of Study

<table>
<thead>
<tr>
<th>Types of Degrees</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science</td>
<td>17</td>
<td>55%</td>
</tr>
<tr>
<td>Master of Art</td>
<td>8</td>
<td>26%</td>
</tr>
<tr>
<td>Master of Education</td>
<td>5</td>
<td>16%</td>
</tr>
<tr>
<td>Specialists</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>

As presented in Table 4, the mean of the total credit hours over the 31 programs of study is 34 with a range from 30 to 37. The mean of the credit hours in the category of core courses is 5 with a range from 0 to 6. The mean of the credit hours in the category of specialization courses is 18 with a range from 12 to 24. The mean of the credit hours in the category of elective courses is 5 with a range from 0 to 17. The mean of the credit hours in the category of capstone courses is 6 with a range from 3 to 12.

Table 4. Means and Ranges of Total Credit Hours of the Programs of Study and Credit Hours in the Four Components of the Programs of Study

<table>
<thead>
<tr>
<th>Program of Study Component</th>
<th>Credit Hour Mean</th>
<th>Credit Hour Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program of Study</td>
<td>34</td>
<td>30-37</td>
</tr>
<tr>
<td>Core Courses</td>
<td>5</td>
<td>0-6</td>
</tr>
<tr>
<td>Professional Courses</td>
<td>18</td>
<td>12-24</td>
</tr>
<tr>
<td>Elective Courses</td>
<td>5</td>
<td>0-17</td>
</tr>
<tr>
<td>Capstone Courses</td>
<td>6</td>
<td>3-12</td>
</tr>
</tbody>
</table>

As presented in Table 5, the different programs of studies show different characteristics. Of the 31 programs of study, 20 (65%) are designed for earning an endorsement while earning a master's degree; 28 (90%) require the students to take some research method courses; 24 (77%) provide the students with opportunities to select courses in other areas; 20 (65%) ask the students to complete research projects; 21 (68%) require the students to complete field experience; and 9 (29%) require the students to take a comprehensive exam before graduation. Currently, there are only 2 (6%) programs delivering their courses online.

In each of the four categories, specific frequency and percent were calculated based on groups. In the first category of core courses, 29 out of the 66 core courses (44%) were coded as in the group of research methods, 16 (24%) as in the group of research, 13 (20%) as in the group of seminar and issues, 6 (9%) as in the group of independent studies, and 2 (3%) as in the group of psycho-sociologies (see Table 6).
Table 5. Frequencies and Percentages of Different Programs of Study Based on Different Characteristics

<table>
<thead>
<tr>
<th>Program Characteristics</th>
<th>Yes</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earning an endorsement</td>
<td>20</td>
<td>11</td>
<td>65%</td>
</tr>
<tr>
<td>Taking research courses</td>
<td>28</td>
<td>3</td>
<td>90%</td>
</tr>
<tr>
<td>Taking electives courses</td>
<td>24</td>
<td>7</td>
<td>77%</td>
</tr>
<tr>
<td>Doing research projects</td>
<td>20</td>
<td>11</td>
<td>65%</td>
</tr>
<tr>
<td>Doing field experiences</td>
<td>21</td>
<td>10</td>
<td>68%</td>
</tr>
<tr>
<td>A Comprehensive Exam</td>
<td>9</td>
<td>22</td>
<td>29%</td>
</tr>
<tr>
<td>Delivering courses online</td>
<td>2</td>
<td>29</td>
<td>6%</td>
</tr>
</tbody>
</table>

In the second category of specialization courses, three groups of courses were formalized. Of the 283 professional courses identified in this category, 113 (60%) were coded as in the group of adapted physical activity, 54 (22%) as in the group of kinesiology, 21(22%) as in the group of special education, and 1 (0.5%) as in the technology (see Table 6). The top three courses in adapted physical activity are assessment, introduction, and programming (see Table 7). The top three courses in kinesiology are curriculum, inclusion, and instructional strategies (see Table 7). The top three courses in special education are behavior management, collaboration, and exceptionalities (see Table 7).

In the third category of elective courses, eight groups of courses were developed. Of the 72 elective courses, 43 (60%) were coded as in the group of kinesiology, 6 (8%) as in the group of therapy, 6 (8%) as in the group of special education, 6 (8%) as in the group of psycho-social courses, 5 (7%) as in the group of adapted physical activity, 4 (6%) as in the group of the general education, 3 (4%) as in the group of research and statistics, and 19 (26%) as in the group of not specified (see Table 6).

In the fourth category of capstone courses, four groups of courses were formed. Of the 43 capstone courses, 20 (47%) were coded as in the group of practicum/field experience, 14 (33%) were coded as in the group of research project and/or thesis, 6 (14%) were coded as in the group of comprehensive examination, and 3 (7%) were coded as in the group of no requirements (see Table 6).

Table 6. Frequencies and Percentages of Different Groups in each of the Four Components of Analysis

<table>
<thead>
<tr>
<th>Course Groups</th>
<th>Yes</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>In core</td>
<td>29</td>
<td>16</td>
<td>44%</td>
</tr>
<tr>
<td>Research methods</td>
<td>13</td>
<td>6</td>
<td>22%</td>
</tr>
<tr>
<td>Statistics</td>
<td>6</td>
<td>4</td>
<td>9%</td>
</tr>
<tr>
<td>Seminar and issues</td>
<td>2</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Independent studies</td>
<td>6</td>
<td>4</td>
<td>9%</td>
</tr>
<tr>
<td>Psycho-sociologies</td>
<td>2</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>In specialization</td>
<td>113</td>
<td>54</td>
<td>60%</td>
</tr>
<tr>
<td>Adapted physical activity</td>
<td>54</td>
<td>21</td>
<td>22%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>6</td>
<td>4</td>
<td>9%</td>
</tr>
<tr>
<td>Special education</td>
<td>21</td>
<td>11</td>
<td>11%</td>
</tr>
<tr>
<td>Technology</td>
<td>1</td>
<td>0</td>
<td>0.5%</td>
</tr>
<tr>
<td>In Elective</td>
<td>43</td>
<td>6</td>
<td>60%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>6</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Special education</td>
<td>6</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Therapy</td>
<td>6</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Psycho-social foundations</td>
<td>6</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Adapted physical activity</td>
<td>6</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>General education</td>
<td>6</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Research and statistics</td>
<td>6</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Not specified</td>
<td>19</td>
<td>14</td>
<td>26%</td>
</tr>
<tr>
<td>In capstone</td>
<td>20</td>
<td>14</td>
<td>47%</td>
</tr>
<tr>
<td>Practicum/field experience</td>
<td>14</td>
<td>10</td>
<td>33%</td>
</tr>
<tr>
<td>Research project/thesis</td>
<td>6</td>
<td>4</td>
<td>14%</td>
</tr>
<tr>
<td>Comprehensive exam</td>
<td>3</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>No capstone requirements</td>
<td>3</td>
<td>2</td>
<td>7%</td>
</tr>
</tbody>
</table>

Table 7. Frequencies and Percentages of Top Five Courses in Each of the First Three Groups in the Category of Specialization Courses

<table>
<thead>
<tr>
<th>Groups</th>
<th>Yes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapted Physical Activity</td>
<td>18</td>
<td>16%</td>
</tr>
<tr>
<td>Assessment</td>
<td>15</td>
<td>13%</td>
</tr>
<tr>
<td>Programming</td>
<td>13</td>
<td>12%</td>
</tr>
<tr>
<td>Physical disabilities</td>
<td>9</td>
<td>8%</td>
</tr>
<tr>
<td>Developmental disabilities</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Motor development</td>
<td>7</td>
<td>17%</td>
</tr>
<tr>
<td>Curriculum</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Motor learning</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>Measurement Evaluation</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>Teaching effectiveness</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>Special Education</td>
<td>6</td>
<td>29%</td>
</tr>
<tr>
<td>Behavior Management</td>
<td>5</td>
<td>24%</td>
</tr>
<tr>
<td>Collaboration</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Exceptionalities</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Inclusion</td>
<td>1</td>
<td>5%</td>
</tr>
</tbody>
</table>

4. Discussion

Based on the results obtained in this study, a descriptive profile of the programs of study for master’s degrees in APE can be proposed for professionals. Several aspects of this profile are valuable for discussion.

First, most programs use adapted physical education as the program name. As presented in
Tables 2, 74% (23/31) of the downloaded programs of study use adapted physical education and 14% (4/31) use adapted physical education/activity, showing that APE master’s degree programs currently offered at colleges and universities are primarily designed for preparing APE teachers with a focus on modification of traditional physical education [13].

Second, most programs award a Master of Science after completion of 34 credit hours. As presented in Table 3, 55% (17) of the programs of study award a Master of Science, showing that most APE professionals believe in the APE field being established based on a scientific basis [14], which requires completion of more than 30 credit hours in order to earn a master’s degree program in APE. As presented in Table 4, the mean of credit hours across 31 download programs of study is 34 with a range from 30 to 37, in which about a half of credit hours are distributed in professional components (18 credit hours).

Third, other types of characteristics are dominated on the downloaded programs of study as well. As shown in Table 5, most programs award an APE endorsement (65%) and require all students to complete research courses (90%), elective courses (77%), research projects (65%), and field experience (68%), which are consistent with the professional philosophes reflected in the Adapted Physical Education National Standards (Kelley, 2006). However, most programs do not require all students to complete a comprehensive exam before graduation (71%) and do not offer students the option to take their courses online (94%), showing that most students in APE programs graduated by completing courses specified in the programs of study in a traditional face-to-face setting.

Fourth, some courses are prioritized in most downloaded programs of study as shown in Table 6. In the core component, the top two course groups students are to take are research methods and statistics, which is consistent with all types of graduate programs [15]. In the specialization component, the top three course groups are adapted physical activity, kinesiology, and special education, which are highly recommended in the APE field [4] [14]. In the elective component, the top four course groups are kinesiology, special education, therapy, and psycho-social foundations, which are fully supported by national standards [6]. In the capstone component, the top two course groups are practicums or field experiences and a research project or thesis, which is consistent with all types of graduate programs [15].

It should be noted that in the component of specialization, as presented in Table 7, some specific courses that students are required to take in each of the top three course groups are valuable for further discussion. In the adapted physical activity group, the three specific courses that students are required to take are assessment in APE, introduction to APE, and APE programming. In the kinesiology group, the three specific courses that students are required to take are motor development, curriculum building, and motor learning. In the special education group, the three specific courses that students are required to take are behavior managements, collaborations, and exceptionalities. It seems then that these courses should serve as the foundation for the development of a master’s degree program in APE by a university.

5. Conclusion

In summary, the findings obtained in this study provided a descriptive profile of programs of study for master’s degrees in APE. This profile shows that most programs of study for training APE teachers use adapted physical education to name their programs for which students earn a Master of Science by completing a mean total of 34 credit hours, in which research courses, elective courses, research projects, and field experience are most likely requirements, and for which a high possibility exists for a student to earn an endorsement at the same time they are receiving a master’s degree. This profile also provided information about top course groups in the core, specialization, elective, and capstone components and about top specific courses in each of the course groups. It is clear that the profile developed in this study is useful for professionals in the development and revision of APE master’s degree programs.

6. References


To Investigate the Learning Approaches of Chinese Nursing Students: Cross Sectional Study

Anson C.Y. Tang
Assistant Professor, School of Nursing, Tung Wah College, Hong Kong

Abstract

Due to the substantial nursing shortage in Hong Kong, hospital based nurse training emerged again as one of the major sources of nurse education since 2008. It is therefore necessary to explore whether the reopened hospital based nursing schools can optimize students’ learning. To this end, the aim of the study is to investigate approaches to learning adopted by nursing students after completing a higher diploma programme offered by a local hospital. Method: A cross-sectional study comparing the learning approaches of newly admitted students and final year students of Higher Diploma in Nursing Programme at a local hospital in Hong Kong in 2012. 96 first year students and 89 final year students were recruited. They completed the 42-items Study Process Questionnaires. Descriptive statistics were computed to generate the background information of the respondents and the learning approaches they adopted. Independent t test was used to investigate the difference in learning approach between first year and final year students. Results: Final year students had a significantly lower mean score on deep motive, deep strategic, achieving motive and achieving strategic approaches as compared to those of first year students (t=3.9, p=0.00; t=5.58, p=0.00; t=2.01, p=0.046; t=8.38, p=0.00). Conclusion: Final year students were prone to adopt surface approach in their learning. The traditional teaching approach used in hospital based nursing schools seem not encouraging students to think deeply.
Faculties’ Research Effectiveness in Nigerian Universities

Onyemachi Elsie Opuruiche
Universiti Putra Malaysia

Abstract

Faculties’ research has also been found to be associated with research related issues including research effectiveness. Research anxiety refers to the characteristics which a student perceives as discomforting, to the extent that productivity may be reduced. In the academic domain, research has demonstrated strong relationships among various dimensions of self-efficacy and anxiety. It was noted that fear and anxiety are often the causes of faculties’ ineffectiveness in the conduct of research and that some students also face considerable anxiety toward the dissertation process.

Faculties’ attitude towards research is another very important construct examined in this work. Faculties’ attitude influences how they mentally approach research including all the work related to that research. A positive attitude enables them to solve the problem quickly whereas; a negative attitude hampers the efforts in research.

1. Background to the study

One of the tripod functions of Faculties in any University is to conduct research. Research training has therefore been recognized as an important component of university education because the rapid expansion and progress in research can translate into national development. Research provides a good platform for teaching faculty members to become successful academics. This is because research develops academic knowledge and reinforces the skills needed for effective knowledge transfer.

Universities across the world are considered as producers of new knowledge. They are considered as modern entrepreneurial engines and generators of knowledge through research. Hence, the role of academics is not limited to teaching. In fact, one of the defining characteristics of a university is that all academics are expected to be active researchers. Teachers who are active researchers are more likely to be on the cutting edge of their discipline and aware of international perspectives in their field. Teachers who are involved in research are more likely to be at the forefront of their discipline.

Kotlik, Bartlett, Higgins and Williams, observed that faculty members with longstanding success or integrity in research are often admired by other faculty and students as being on the cutting edge of their field and are regarded as knowledgeable about most issues in their field. These faculty members according to Levine are seen as more powerful educators and often serve as a frame of reference for junior faculty members or others who are developing their own research agenda. [13] [15]

Monroe and Kumar, university faculties are the primary actors in this research production system and ultimately, it is their attitude, perception and self-constructs that determine the effectiveness and output of academic research. A growing literature has documented the importance of research self-efficacy in the research training. In general, self-efficacy term represents one’s confidence in being able to perform a given behavior. According to self-efficacy theory, if people believe that they have the ability to complete successfully a given behavior, then they are more likely to engage in that behaviour. For instance, research has shown that high research self-efficacy is an important factor related to faculties’ successfully conducting research. Research has also shown that low research self-efficacy can interfere with faculties’ research training and their effectiveness in the conduct of research. [19] [10]

The enhancement of positive attitudes toward research, therefore, is one of the key components that impacts faculties’ research self-efficacy and effectiveness. Faculties’ attitudes are described as a psychological evaluation such as good-bad, harmful - beneficial, pleasant-unpleasant, and likable-dislikable. Few studies have investigated faculty research attitudes that shape academic research behaviours and effectiveness [21] [3]

Possession of reasonable research skills by faculties is capable of determining faculties’ research effectiveness. Miura had earlier suggested that self-efficacy may be an important factor related to the acquisition of computing skills. By implication, research self-efficacy could be an important variable related to the acquisition of research skills.

Faculties’ research effectiveness can also be determined by the way academic staff view themselves. In other words, Faculties’ self-concept equally plays prominent roles in research effectiveness. This is because the way a faculty perceives or conceives personal abilities, capabilities and potentialities often affect such Faculties’ research effectiveness. Phillips and John observed that self-concept is currently gaining prominence in educational research and evaluation studies, both as
an outcome sought for its own value and as a variable moderating other relationships. Researches have therefore confirmed that there is positive relationship between Faculties’ research self-concept and research effectiveness [17].

2. Statement of the problem

Research, no doubt, is an important function of faculties in any university. As earlier asserted, one of the defining characteristics of a university is that all academics are expected to be active researchers. There appears to be low research productivity among academics, which may be attributed to their ineffectiveness in the conduct of research. The study will therefore investigate some determinants of faculties’ research effectiveness in Malaysian and Nigerian universities in terms of research psychological characteristics namely research self-efficacy, research anxiety, research attitudes, research skills and research self-concept.

3. Objectives of the study

The broad objective of the study is to investigate some determinants of faculties’ research effectiveness in relation to research self-efficacy, research anxiety, research attitude, research skills and research self-concept in Malaysian and Nigerian universities.

4. Scope and Delimitation of the Study

The scope of the proposed study shall cover all Malaysian and Nigerian public universities. The study shall be delimited to the following variables research self-efficacy, research anxiety, research attitude, research skills, research self-concept and research effectiveness.

5. Literature review

Review of literature shall be done under the following sub-headings:

- The Concept of Research Effectiveness
- Research Self-Efficacy and Research Effectiveness
- Research Anxiety and Research Effectiveness
- Research Attitudes and Research Effectiveness
- Research Skills and Research Effectiveness
- Research Self-Concept and Research Effectiveness
- Theoretical Framework: Social Cognitive Theory

6. Operational definitions of terms

The following terms shall be operationally defined based on the meaning they convey within the context of the study: Faculty, Research Effectiveness, Research Self-Efficacy, Research Anxiety, Research Attitudes, Research Skills and Research Self-Concept.

7. Methodology

The systematic procedure by which this study will be carried out is explained in this sub-section. This will be done as indicated below:

7.1. Research Design In carrying out the study, the Researcher will use the descriptive survey research design, which is “ex-post facto” in nature. This is because this design will enable the researcher to collect non-manipulable relevant data, using validated and reliable questionnaire from large study population.

7.1.2. Population of the Study The target population for the study will consist of all academic staff in all the Malaysian Nigerian public universities.

7.1.3. Sample and Sampling Technique Stratified random sampling technique will be used to select the sample size for the study. All the universities shall be grouped into two based on the countries involved. The universities will later be stratified into Federal or State owned. As regards the sample size for the academic, disproportionate stratified sampling technique will be used such that regardless of the number of the academic staff in each university, 10% of it shall be sampled.

7.1.4. Research Instrument A researcher-designed validated and reliable questionnaire (r-.78), entitled ‘Academic Staff Research Effectiveness Questionnaire (ASREQ) will be used for data collection. This instrument will be divided into seven Sections. Section A will provide information on the bio-data of the respondents while Sections B, C, D and E will seek information on research self-efficacy, research anxiety, research attitudes, research skills, research self-concept and research effectiveness respectively. Each of Sections B, C, D and E will consist of ten items each. While Sections B, C, and D will be scored on a four-point modified Likert response options ranging from Most Like Me (MLM), Like Me (LM), Least Like Me (LLM) and Not Like Me (NLM), Section E will be scored on a four-point modified Likert response options ranging from Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with weights 4, 3, 2, and 1 respectively. However, negative items will be reversely coded as 1, 2, 3, and 4 for data analysis purpose.

7.1.5. Validity and Reliability of the Instrument In order to validate the instrument, the items of the
questionnaire will be given to some more experienced colleagues for necessary corrections. This will be done with a view to ensuring that the instrument measures what it is expected to measure. As regards reliability of the instrument, the researcher will carry out a pilot study on some academic staff of a university that will not be included in the real study. Internal consistency method of estimating reliability, specifically, the Cronbach Alpha will be used.

8. Method of data analysis

Descriptive statistics will be used to analyse the bio-data of the respondents while Inferential Statistics, specifically Multiple Regression Analysis will be used to test the first-six hypotheses, while the last hypothesis will be tested with Independent t-test. All the hypotheses were tested at 0.05 level of significance.

9. References


Session 35: Primary Education

Title: 'Where do we come from and how We Construct Knowledge of Primary School Context':
A Narrative Analysis of Trainee Teachers during Placement
(Author: Meda Charisma Thondee)

Title: Supporting the Rights of the Girl Child through Enhanced Teacher Guidance and Counselling Approach in Post Primary Education in Nigeria
(Authors: Joseph Abraham Ocholi, Deborah Igbe Ocholi)

Title: A Portrayed multiple-case study of five Australian Educators’ Language Practices Regarding Chinese Children’s English Learning in Early Childhood Centres
(Author: Jiangbo Hu)
‘Where do we come from and how We Construct Knowledge of Primary School Context’: A Narrative Analysis of Trainee Teachers during Placement

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Abstract

The present study explores how trainee teachers construct knowledge of primary school context during their school placement. This study extrapolates on what fashion trainees’ teacher beliefs, values and attitudes to unlock the way they perceive, conceive and lived school as a place of work. As part of the findings, this study also draws attention on the latter’s articulation of school contexts as being enmeshed into specific spaces and landscapes, which directly and indirectly feed them with knowledge about what constitute being a school practitioner. The data collected using qualitative visual methods are analysed and presented in a series of travel metaphors which explicate the lived stories of the participants immersing and dwelling into school contexts. My sample consists of seven trainee teachers who enter the teaching profession following several personal and professional pathways. I chose to explore the participants’ construction of the school context through what they imagined, believed, lived and experienced as trainees on placement, and opt for a theoretical model which hinge on ‘Hacking’s construction of what’, Lefebvre’s spatial triad and Urry’s Tourist gaze to build a critical argument.

References


Supporting the Rights of the Girl Child through Enhanced Teacher Guidance and Counselling Approach in Post Primary Education in Nigeria

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Abstract

Girl Child Right, especially to education in Nigeria, is an issue of growing concern which is treated with levity. Scholastically records show that, the girl-child faces a lot of molestation which includes, forced labour, being sold into slavery, and forced into early marriage. This is a trend that can be eradicated through Enhanced Teacher Guidance and Counselling. To buttress this view, we embarked on this study to identify how Guidance and Counselling Approaches can be deployed to educate the girl-child and enable her to stand strong in the face of her plights/challenges. We adopted a descriptive survey research design using Key Informant Interviews and participant observation method of data gathering. Our representative samples were selected by identifying schools in local government headquarters of the study drawn from both the northern and southern parts of the country. Findings revealed that guidance and counselling plays a very prominent role in educating the girl child about her rights. This however, is bedevilled by poor government policies and unavailability of adequate finance. In our submission, we suggested that, there is the need for a deliberate government policy mandating the setting up of effective guidance and counselling units to support the education of the girl-child.

1. Introduction

Girl Child Right, especially to education and several other things in Nigeria, is an issue of growing concern which, in our view, is treated with levity even though it is topical, current and has been discussed extensively in several fora including academic conferences and seminars. Rather than having free access to education and opportunities in their daily affairs, the girl child in Nigeria continues to be deprived of the right to it. The plight of the girl-child ranges from all sorts of molestations which includes, forced labour, being sold into slavery, being used as sex tools and often forced into early marriage or engaged as house helps.

These occurrences completely deny her the right to function adequately as a free member of society.

Yet scholars aver that, education, at basic and post primary school, are a fundamental right of every child as it unveils their great potentials. This is essential for the exercise of all other human rights which promotes individual freedom, empowerment and yields important development benefits [1]. Asiegbe, Okorji and Bosah [2] opine that, education inculcates in the individual, knowledge, skills, character, and desirable values that will foster national development and self-actualization.

Today in Nigeria, the plight of the girl-child has taken a front burner and occupies topics of intellectual discourse, debates, and brainstorming sessions all aimed at identifying workable solutions to ease their sufferings. Issues often discussed revolve around, but are not limited to, girl-child vulnerability and gaps of policy directed at mitigating their exposure to ills in society. Despite all efforts made at deliberating on the matter, issues of girl child molestation, trafficking in prostitution, forced labour and in recent times, underage marriage, persist. Rather than abate, there has been a growing and frightening silence to the plight of the girl child. Evidently, she is neglected both by government legislations and social concerns. There are next to nothing of group support systems to cater to the fallout of the neglect the girl child suffers in the society. The girl-child is frequently taken advantage of in terms of care for her wellbeing starting from the family unit. It has become obvious that, further steps, both vocal and advocated, have to be taken.

The researchers are of the opinion that one of such approach or attempts to reduce or mitigate the plight of the girl child is through enhanced teacher guidance and counselling. Guidance and counselling is a learning oriented process carried out in a social environment in which the professionally competent counsellor attempts to assist the counselee, using appropriate procedures, to become a happy and productive member of the society. They do this by formulating realistic and purposeful goals for total personal growth [3]. Jones [4] on the other hand describes guidance as personal help given by someone; it is designed to assist a person to decide where they want to go, what they want to do or how they can best accomplish their purpose; it assists
them to solve problems that arise in life. This study agrees with the postulations of these scholars and subscribes to the relevance of enhanced teacher guidance and counselling in post primary institution. However, the extent to which this is true can be deduced through the findings of this study.

2. Literature Review

The relegation of the girl child to second class status dates back several centuries past and emanates from the casual attention given to women from time immemorial. Early history shows that the human society has been a male dominated one [5]. For instance, in the Arabian culture, the birth of a daughter is regarded as a thing of shame and disgrace. Thus, these offspring are treated with disdain and contempt in line with the shame and disgrace they are purported to have brought to the family, while the birth of a son is welcomed with jubilation and celebration. The male children, when born are often cradled, clothed in robes, adorned in jades, and presented with scepters as toys.

Similarly, in Nigeria, the approach to the birth of female children is not very different from the plight of the girl-child in the Arabian customs and in fact several other developing societies. Like its Arabian counterpart, the birth of a male child in Nigeria excites members of the family more than a female child. In the view of Uwameiye and Iserameiya [6], as the girl passes through the stages of development, she is bewildered with the peculiar violence of that stage, and as the girl child grows older, the discrimination against her increases, not to talk about other forms of abuse suffered by the girl child within the environment she finds herself starting from her immediate family unit.

The family unit instead of making adequate provisions for the safety of the girl child would rather expose her the most with the kind of roles drawn out for her in the home front. For instance, girls are made to travel distance to fetch large quantity of water meant for use in the house irrespective of the time of the day, while her male brothers go off to school. The belief is that, girls when grown up will eventually get married and go to someone else’s home while, the male child will have to carry on the name of the family. As such, supporting the girl’s education will only add value to her future husband. This belief still exists in some areas especially in the Northern area of the country where it is very common to give out girls for marriage at very tender age. In the view of [7], this gender apartheid places the girl child in a disadvantaged position, where her potentials are suppressed and self-actualization is not achieved. She therefore becomes a victim of a pre-existing socio-cultural male chauvinism. Furthermore, on the account of gender, girl children are subjected to all multiple forms of oppression, exploitation and discrimination.

3. Statement of the Study Problem

That the girl-child in Nigeria is exposed to all sorts of molestation ranging from slavery to forced labour is no longer news. In recent times however, a very dangerous dimension has been added to this menace, which is; abduction into early marriage at very young age of between 12 and 13 years. This trend is ubiquitous and has become the order of the day. As if that was not enough, victims are compelled to denounce their religion and identity with a new one. The recent occurrence where 13-year-old Ese Oruru was lured into eloping with an eighteen (18) year old lad to the Northern part of the country where she was forced into marriage and forced to embrace the religion of Islam is just one case too many. Ese epitomizes other girls who are being held against their parents wish in Kaduna, Bauchi and Zamfara states [8]. Apart from Ese, other similar issues abound in their numbers.

For instance, in the month of May 2014, a 16-year-old girl named, Itseoma Nicodemus from the Eastern part of the country was equally lured into eloping with a young man simply called Abdullahi in Zaria, Kaduna State and has been renamed Aisha. Similarly, Blessing Gopep, a 13-year-old was abducted in August 2015 by two men named Iliya and Umaru in Bauchi she is now called Mariam. Linda Christopher was equally abducted in Bauchi by an assailant named Shagari in November 2015; she is now known as Aisha. Progress Jacob, a 13-year-old girl, was abducted in January 2015 by someone called Musa in Bauchi; she has now been renamed Aishat. Lucy Ejeh was abducted in 2009 at the age of 15 by one man called Awaiaus; she has been renamed Lewusa. This could go on and on; the list is endless.

The question that may come to mind at this juncture is, what is the government of Nigeria doing about these cases? Another question begging for an answer is, what are Civil Society Groups or Non-Governmental Organisations (NGOs) doing about these incidences? The answer is, nothing significant. While the government seems to have turned a blind eye to this serious human tragedy, there is a dearth of NGOs and International Non-Governmental Organisations that focus on these very mind boggling occurrences that threatens to undermine the freedom of the girl-child in parts of the Nigerian society. This study is an effort towards identifying the best approach to be involved in seeking lasting solutions to the problem. We concluded that, rather than grouse over what ought to be done, by whom it should be done, individuals, organisations and concerned non-governmental organisations should rise to the occasion by looking critically at this
situation and setting up strong advocacy fronts and concerted campaigns that will make government see reasons to rise to the challenge that the abuse of the girl-child rights portend for society.

4. Methodology

The research method adopted for this study was Key Informant Interview (KII). This method was used to elicit information from the school children as well as Guidance and Counselling (G and C) Teachers of the selected secondary schools within Abuja - the Federal Capital Territory (FCT), Keffi and some schools in other states in the Southern part of Nigeria. A purposive sampling was used to determine the locations where we visited. These areas were chosen as follows; in the Northern part of the country we sampled opinion of Guidance Counsellors in two schools selected in the Federal Capital Territory Development Area (FCDA), Junior Secondary School Orozo and Senior Secondary School Nyanya; both in Nassarawa State. In Keffi, Junior Secondary School Kofa Hausa and Government Day Secondary School. One school, the Army Day Secondary School, in Minna Niger State, two public schools in Kaduna as well as Makurdi; (Government College and Saint Gabriel) Benue State; all in the North.

In the Southern part of the country, we equally sampled two schools in Akwa Ibom State; Community Secondary School Ukotokubo and West Itan Secondary School Uyo.

Apart from these schools, government officials in the Abuja Municipal Education Authority were contacted and interviewed on policy issues and implementation. The study identified policy gaps, best practices and critical governance issues and probable challenges emanating from the educational body. The analyses rely more on the qualitative approach to review the information gathered, analyzing the voices of the respondents in this case, Guidance Counselling Teachers (G&C Teachers) of the various schools visited in order to extract an evidence based outcome of trends on the subject.

5. Analysis of Findings and Outcomes

The major findings from this study include but not necessarily limited to the following facts:
• The girl child in Nigeria indeed is vulnerable and highly molested by different groups of people including her family unit and her male counterparts within and outside the school.
• Social/cultural proclivities especially the societal discrimination.
• Gaps in the implementation of Government policies.

The above findings in schools domiciled in the Northern part and are almost same as those in the southern parts of the country though with slight variations due to environmental and cultural differences in the country. Schools from both regions are fraught with multiple recorded cases of sexual assault and molestation both at home, within the society as well as within the school. Often, female students are forced to partake in inappropriate sexual acts with their male guardians who may also be related to them. Among the reasons for dropping out is unplanned pregnancy, sometimes through rape. However, in one school in the south, there is an added element of young girls being inducted into a cult system through older male influence.

Regardless of whether the girl-child is subjected to these instances of molestation, they are often at risk of enslavement through intense housework and miscellaneous requests. There was a case in the North, where a female student was not allowed to go to school until she had given her female guardian a full body massage and cooked her meal, causing her to arrive at school hours late. This practice was purely for the guardian’s enjoyment.

Findings show that, the Guidance and Counselling units of the schools in both regions did not relent in their efforts to sensitize and equally enlighten the girl-child of her vulnerability and how to build defences to wade off the vagaries and ills that attempts to overwhelms her.

Among the approaches adopted by the counsellors, especially in Schools in the Northern part of the country is, a weekly gender assembly; a meeting session where the girls are separated from their male counterpart and taught some basic lessons of personal care, proper conduct, male advances and awareness on dangers that lock around the environment. Our findings show that, usually after such interactive discussions, some the victims of extreme abuse are emboldened to bring to the knowledge of the Guidance Counsellors similar plights recounted in their interactive discussions. Though in the South, teachers/counsellors are still petitioning the schoolboard for space in the curriculum to address the students.

6. Discussion

From the forging, it is evident that there is a complete disregard for the rights of the girl child in Nigerian society. While the laws exist, those who impinge on the rights of these vulnerable individuals are not held accountable for their actions. Most of these problems stem from the home as the first agent of socialising the girl child to the ills in society, and stretches outward to other agents of socialization to which the school belongs, with the girl child being the victim. At the home front, the role given to the girl child falls within, cooking for the entire family, going long distance to fetch water and performing other time consuming and strenuous functions, while
the male plays around the house. Likewise, at the level of society, the cultural proclivity puts the girl child at the receiving end. Culture and customs limit her to act in ways that ensures her commitment to the patriarchal dictates of her counterparts.

This brings us to the challenges and existing gaps in policies and challenges limiting the effective implementation of guidance counselling as an effective tool for increasing awareness in secondary schools. Findings show that, the guidance counsellors are limited in several ways. Among this is, the absence of deliberate policy direction that mandates the ways the duties of the counsellors ought to be. Also, lack of training as well as opportunities to attend skill building seminars deprive these professionals of knowledge on the current trends and approaches to deal with complex situations.

7. Conclusion

Guidance counselling is very important and is instrumental in guiding and protecting the girl child from falling into the trap that denigrates her rights in society. This underscores the significance of this study in that, it provides adequate information both to researchers for further studies as well to nongovernmental organizations and the government to help it appreciate the depth of the plight of the girl. Especially those who may want to key into programme supports for this group of people. We confidently say that through enhanced teacher guidance and counselling approaches, the girl child can become adequately enlightened about the inherent danger around her and be educated on the very best way to guide herself from the danger lurking at the backyard of her life. The relevance of guidance and counselling can never be over-emphasized. As findings have shown, that at the family unit, the girl child is not safe; likewise, at the tiers of government. The most promising ally is the guidance and counselling support directed at empowering her through adequate knowledge. Hardly has this angle been advocated. We strongly postulate that; enhanced guidance counselling is sine qua non to improved living and can improve the way the girl child interacts in Nigerian society. Thus, adequate support should be given to the guidance and counselling units of schools to help improve the conditions of the girl child so that she is able to pursue an education free of these troubling barriers in Nigeria.

This study was carried out in public schools and can not necessarily be generalized to the private sector. In order to fully grasp the struggles faced by the girl child, future studies should aim to include private schools in their research. Diverse experiences due to differences in socioeconomic class and status may present unique results and provide a more cohesive understanding of the research problem. Regardless, the issues faced by these vulnerable individuals in the public sector must be considered when discussing school curriculum and government policy on education.

8. References


A Portrayed multiple-case study of five Australian Educators’ Language Practices Regarding Chinese Children’s English Learning in early Childhood Centres

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Abstract

This paper reports five Australian educators’ language practices relating to English language learners (ELLs), specifically, Chinese children’s English learning in early childhood centres. Portraiture methodology is employed in this study to present the investigation by embracing the views of the participants who negotiate their experiences with a desire of showing goodness of their practices. The five portraits of the educators were analyzed with Cummins’ [2] framework for supporting ELLs’ language development with different language activities that are categorized with the dimensions of contextual support and cognitively demanding. The portraits, on one hand, reveal the goodness of the educators’ practices that involve a variety of strategies supporting ELLs effectively, and some examples offered by the educators may be inspiring for other educators. However, on the other hand, the portraits demonstrate the challenges experienced by some educators whose practices draw heavily on body language that is highly context-embedded and highly cognitive-demanding. They suggest some opportunities for enhancing educators’ knowledge about different language strategies, especially highly context-embedded and highly cognitive-demanding language activities in practice. The implications from the study inform the avenue of future educator training programs in the field of supporting ELLs’ language development.

2. Theoretical framework of language activities and second language development

Lindy: “Lucas, can you please stand up and tell us what you are going to find in the basket?” (Lindy said to Lucas, a 5-year-old Chinese boy who was sitting in the group, joining in a game called “Shopping basket”. Lucas stood up and held the shopping basket passed by a boy sitting next to him. He looked at Lindy.)

Lindy: “I went to the shop”
Lucas: “I went to the shop”
Lindy: “And I bought…”
Lucas: “And I bought…” (He took a book out of the basket)
Lindy: “What is that?”
Lucas: “Book”

This dialogue occurred in a group language game that Lindy created for children to practice describing an event in complete sentences. She put different items in the basket and asked children to take an item out one by one while using the sentence “I went to the shop and I bought a…” to label the items. Five items were placed in the basket. Children took turns to play the game with five at a time in a group. In each group, the first child should say the item he/she picked up, and the second child should say the items picked up by himself/herself as well as by the first child, for example “I went to the shop and I bought a ring and a book.” The third, fourth and fifth children were then required to add the items to their sentences. The fifth child had to say the longest sentence by labeling all the five items. Lindy ensured that the game ran smoothly by guiding the children where necessary. All children showed interest by actively joining in the game and participated cooperatively. Lucas was guided by Lindy to sit in the second group. This provided him with an opportunity to watch the first group’s performance before having his turn. He was in a position to be the first member in his group who only needed to say one item. He spoke the sentence with Lindy’s modeling and encouragement. He also watched and listened attentively to the other children throughout the game.

Though this game was organized for all children, Lucas’s additional language needs were carefully addressed by Lindy. Lindy placed Lucas in a position that made his task easier. She also used the strategy of modeling to guide him speak the sentence. In this activity, Lucas was provided with opportunities to hear and mimic comprehensible English in a context supported by props. According to Shin [13], this is an effective language activity for English language learners to use English with understanding of meanings.

The actions that Lindy had taken for Lucas in the game is just one of the examples to show how English background educators try to help English language learners (ELLs) develop English skills and include them in group activities in their early childhood centres. Educating ELLs can be a challenging task. Educators need to combine sound knowledge and consideration of these children’s particular needs in practice, as shown in the above
example. Common behaviors among ELLs such as being silent, having difficulty in expressing ideas in English and following instructions may bring challenges to interactions and educational activities [12][14]. This challenge seems to be pertinent, given the rapidly growing number of ELLs due to high level of immigration to Australia [1].

Research about the education of ELLs suggests a number of effective strategies for educators to support these children in the process of acquiring a second language and adapting to new environments. First, highlighting ELLs’ culture, language and home experiences. ELLs show more motivation in learning new skills in an environment where their language and culture are valued [2]. They will be more engaged and generate more responses to topics connected with their cultures or the things they are familiar with. Chinese children may show more interest and understanding in topics relating to Chinese culture (e.g. Moon Festival). Second, using appropriate pedagogical strategies to facilitate ELLs’ understanding of English in different contexts. For preschool-aged ELLs, providing opportunities for exposure to comprehensible English is necessary [13]. Educators can make their language more meaningful using strategies such as exaggerating body language and facial expression, speaking clearly and slowly, using pictures or props, or involving multi-media presentations [6]. Third, using scaffolding to foster reading skills and vocabulary learning. Pre-teaching of some key words enables ELLs to better understand the whole text [3]. Repetition of the same words in routines or regular learning events helps ELLs learn the words effectively [11]. Fourth, for young ELLs, poetry and songs are also great venues to enhance their phonological awareness [11].

Research in language education for ELLs mainly focuses on how to apply effective approaches to maximize children’s language learning in educational environments. Many studies were undertaken in an environment where bilingual staff were available, or targeted interventions were being implemented. These studies sought to find ideal practices that educators should apply to support ELLs. However, little literature is available on educators’ language practices with ELLs in regular settings. What language practices are evident in educators’ interactions with these children? How do educators apply their knowledge of language education with ELLs? Knowledge in this area is limited. This study is designed to investigate Australian monolingual English early childhood educators’ efforts in enhancing Chinese children’s English skills in daily practices. The above two questions formed the central focus of this study. The reason for the focus on Chinese children is because first the number of Chinese children is increasing rapidly in Australian educational settings and Chinese constitutes one of the biggest ethnic groups in Australia [10]. Second, many Chinese children have little English language skills before entering an educational setting due to the dominant exposure to their home language in their families [7]. These children may experience difficulties in understanding and using English in early childhood settings and need substantial support from educators.

In the following sections, I first discuss the theoretical framework of language activities that support language development of ELLs. Then I introduce the participants and portraiture as a research methodology followed by five individual portraits. Finally I discuss some issues revealed by the portraits that have implications for the language education of ELLs in early childhood centres.

2. Theoretical framework of language activities and second language development

The process of achieving English language proficiency for ELLs is complex. According to Cummins [2], language proficiency refers to both casual language in social situations and academic language in educational environments. Casual language in social situations is often informal and occurs in environments where many language cues lie behind the actual words, such as an instruction with hand gestures. An understanding of intended meaning can be more easily gained by the combination of spoken words and cues. Cummins labels this type of language as context-embedded and cognitively undemanding. On the contrary, academic language is often context-reduced. It requires cognitive skills such as analysis and logical thinking in the interactions, for example a description of an abstract concept of a social phenomenon. In general, the process of language development of ELLs moves from context-embedded and cognitively undemanding casual language to context-reduced and cognitive-demanding academic language. ELLs may need five to ten years to achieve proficiency in academic language [2]. This might be challenging for some educators, particularly those working with ELLs who use fluent English in daily social conversation. These children seem to have achieved as high a proficiency in English as native English speaking children in casual communication. However, they may still need support in the development of formal academic language which is not immediately obvious to educators.

Cummins [2] used the following figure to describe the range of contextual support and degree of cognitive involvement in language activities that support the process of ELLs’ English language development:
social power relations. For example, in the 1970s, educators play a critical role in influence educators’ language attitudes and practices, and educators play a critical role in negotiating their practices within frameworks of social power relations. For example, in the 1970s, immigrants were encouraged to abandon their home language and shift to English for assimilation. This factor could be reflected in educational settings. Educators could either strengthen the power by forbidding ELLs to speak their home language, or reduce the influence of the power by supporting home language based on their understanding of education of ELLs.

3. Methodology

This paper is drawn from a larger, multi-case study. Case study provides a broad underpinning for the current paper. While a case study approach allows for deep investigation of each case and cross-case comparisons, portraiture methodology is used to emphasize the characteristics of educators’ language practices and the rich contexts in which they occur. This method enables me to focus on the goodness of the practices through interaction with the educators who negotiate the experiences [8]. It also allows me to embrace my views and experiences in the process of data collection and analysis [8]. According to Merriam, the combination of cross-case analysis and portraiture is advantageous in gaining both width and depth of an investigation of social phenomena [9].

3.1. Portraiture as a research method

Portraiture was first developed by Lawrence-Lightfoot in 1983 [5]. It is a research method blending art and science. Artistic expression and traditional qualitative inquiry work harmoniously in a portraiture study [8]. A portrait is more than a reflection of facts in a mirror. While accurately capturing main factual characteristics, it reveals truths in an artistic way through the understanding and experiences of the painter (researcher) as well as through the interactions between the painter and the painted (participants).

Portraiture highlights the importance of context which is similar to case study and anthropology. According to Lawrence-Lightfoot and Hoffmann Davis, rooting in a rich context is a central element of presentation of a study because context conveys the constraints and opportunities in the expression of participants.

While emphasizing the context of participants, the researcher’s position is highly valued in portraiture research. The researcher’s voice is woven into the portraits on purpose. Lawrence-Lightfoot and Hoffmann Davis [8] argue that interweaving the researcher’s personal views is not to distract readers; instead, it helps readers to gain a deeper understanding of the research subject through researcher’s views, and also have an awareness about the lens through which the issue is investigated. This is different from research that tries to maintain researcher objectivity by avoiding...
personal factors that influence description of the subject. However, in many situations, researchers are attracted to a topic due to their interests and backgrounds. Portraiture allows researchers’ views and experiences to be embedded in the study. Portraiture recognizes the fact that the physical presence of a researcher unavoidably changes a research environment. The interaction with participants, the researcher’s prior experiences and assumptions shape the setting in a subtle way. A first-person account is used in portraiture to reflect these attributes in the description.

As a Chinese immigrant and an early childhood educator, I have first-hand experience of learning English as a second language and I have worked with ELLs in a preschool in Sydney, which gives me a privileged insider’s perspective. In the process of developing English skills, I met a lot of challenges similar to other ELLs, such as losing confidence in interacting with other people and having difficulties expressing ideas properly. I struggled to survive in a world that was very difficult for me to understand and adapt to. I have strong empathy with young ELLs who are facing the same challenges. Even though young children may find their own ways to adapt to the new environments and learn the new language sooner or later, I found that educators could help facilitate this process by intervening appropriately, as research has suggested. My experiences, especially empathy to ELLs and sensitivity to supportive interactions between educators and ELLs, influenced the process of data collection and analysis and the development of the portraits. For example, I was impressed by the educators’ expression of caring for ELLs’ socioemotional feelings in language learning, which is reflected in the educators’ portraits.

Another unique characteristic of portraiture is that it concentrates on goodness. It seeks to capture participants’ view about what is important and good in their practice. This is significantly different from some other methodologies that highlight the need for improvement of educators’ practice [4]. Social researchers tend to “focus their investigations on pathology and disease rather than on health and resilience” [8] (p. 8). However, in some situations, educators can gain more from understanding success than from understanding failure. Furthermore, seeking goodness doesn’t mean ignoring challenges in the case. Weakness can be recognized in the process of capturing goodness. Portraiture is generous as well as critical, with a view to positive outcomes.

3.2. Participants

This study involves five educators from five early childhood centres. Each participant:
• Is a monolingual English speaker;
• Has a vocational diploma or university degree in early childhood education;
• Has experience working with Chinese children and families.

I distributed information about the study and participant selection criteria to the directors of early childhood centres in Sydney suburbs where Chinese community are located. The directors, in turn, identified the potential participants. I visited each centre to meet with staff and explain the study, and then obtained their informed consent.

This paper is a part of a doctoral project investigating Chinese children’s language experiences. Participants in the larger project include Chinese children, their parents and their educators. This paper focuses on educators’ language practices and their interactions with the children. The information of the educators and the Chinese children is listed in Table 1. Pseudonyms are used throughout this paper.

Table 1. Background of educators and focus Chinese children

<table>
<thead>
<tr>
<th>Educators</th>
<th>Qualification</th>
<th>Focus children</th>
<th>Age</th>
<th>Percentage of ELLs in the class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna</td>
<td>Bachelor</td>
<td>Elli</td>
<td>3.9</td>
<td>42%</td>
</tr>
<tr>
<td>Lindy</td>
<td>Diploma</td>
<td>Lucas</td>
<td>4.5</td>
<td>10%</td>
</tr>
<tr>
<td>Mary</td>
<td>Diploma</td>
<td>Emma &amp; Imogene (Twins)</td>
<td>3.7</td>
<td>33%</td>
</tr>
<tr>
<td>Rae</td>
<td>Bachelor</td>
<td>Jacky</td>
<td>4.8</td>
<td>75%</td>
</tr>
<tr>
<td>Virginia</td>
<td>Bachelor</td>
<td>Riana</td>
<td>4.9</td>
<td>30%</td>
</tr>
</tbody>
</table>

3.3. Data Collection and Analysis

Data for this study were collected through non-participant observation and semi-structured interviews. I visited each centre four times. I informed educators in advance before each visit and educators were prepared for it. During the visits, I observed the educator’s interactions with the focus Chinese children as well as with other children. During the last visit to each centre, I used a video camera to record interactions between educators and focus Chinese children, including routines such as mealtimes, spontaneous interaction, and planned group and individual activities. The interview was undertaken on the third visit to each setting, allowing me to develop some relationship with the educators. During the interviews, the educators introduced their views on language development and education of ELLs based on their knowledge and understanding, and the strategies they used to support the focus children as well as other ELLs to develop their English skills. I found that educators did not just
simply try to involve Chinese children in routines. They set the room, planned the programs, and organized the activities with their understanding of language education at the forefront. In addition to undertaking interviews, I had opportunities for additional conversation with the educators during each visit. These conversations, along with some activities that I observed but had not been filmed, were recorded in field notes. In these conversations, educators explained the ideas behind their practice or introduced other practices that they couldn’t show me on the observation days. For example, after the “Shopping basket” game, Lindy explained that she had another way to play the game if she found that some children had difficulty repeating the sentence. She would say the sentence “I went to the shop and I bought…”, and let the children come to her, pick up the item and put it into the shopping basket. It is noticeable that no matter whether in formal conversations, in interviews or in casual conversations during my visits, educators tried to display the goodness of their practices.

After data collection, I started to craft the portraits. I first reviewed interview data, listing the strategies that educators introduced. I followed this by sieving the observation data and distilling strategies that were evident from both data sources. The careful refinement and filtering processes allowed me to summarize educators’ practices and capturing the most salient characteristics of these.

In this process of developing individual portraits, the strategies identified that had been used by the educators were also analyzed with Cummins’ framework of four types of language activities. The types of educators’ strategies are in line with the characteristic of their portraits. I will discuss the types of the educators’ activities after presenting the portraits.

4. The Portraits

In this section, I will present the portraits of the five Australian educators’ language practices. In each portrait, I will introduce the early childhood centre as well as the educators’ interactions with Chinese children based on their understanding regarding language education. First-person account is used in the description of the portraits that involve my voice and feelings.

4.1. Lindy: Making language comprehensible by building on children’s previous experiences

Lindy is a very experienced educator who has worked in Blue preschool for over twenty years. She stated that the most attractive part of her preschool is its natural environment. Located in a quiet street next to a park, the preschool is surrounded by a big garden where staff and children may enjoy planting vegetables and flowers throughout the seasons. The low-level building stands beside the garden. A small lane starting from the veranda leads to the middle of the garden. Inside the building, a large space is divided into two parts by a sliding door. One part caters for the 3-4 year-old group and the other for 4-5 year-olds. Lindy works with the older age group. The majority of children in her group are Anglo-Australian native English speaking children. Two boys are from Chinese backgrounds. Lucas, the focus child, has been attending the preschool for about twelve months.

I observed that in the morning between 10 and 11 o’clock, the following scene takes place in Lindy’s room. Lindy sits with Lucas and a few other children at the book corner, reading a book. This morning she read a book titled “The magic hat”. She read through the book with a few stops, encouraging children to label some key words. For example, she asked “Can you please tell me … the hat sits on the head of…?” “Giraffe!” a child answered. “Giraffe!” Lucas followed. Then she continued reading. When it was in afternoon group story time, Lindy took the book out again and read it to the group. All the children were attentive including Lucas, who showed interest by listening to it intently. After the reading, Lindy asked a girl to put the book in the room library where children can borrow books to take home and read them again. At the end of the day, Lucas’ mum came to pick him up. Lindy reminded Lucas to borrow a book from the library to take home. He went to the shelf and picked up a book titled “Molly at the dentist” that was read a few days ago in the room.

As an educator with over thirty years’ experience, Lindy showed comprehensive knowledge and skills in language education by using a number of strategies for ELLs’ English learning such as modeling with slow and clear language, using visual aids and involving parents. She highly values the strategy of creating opportunities for ELLs to comprehend language by building on their previous experiences through repetition. This is typically reflected in her book reading practices. Lindy states that pre-reading the story is necessary for ELLs to gain a good understanding in group reading activities.

“The other thing we do is read the book that we’re having for group time. We’d read it to the children to prepare them for it, and go through and pick out key words and that sort of things, so they have an understanding when they sit on the mat with the class. They’ve already been prepared for the story otherwise it would be hard for them to sit for a long time listening to something they don’t fully comprehend.”

Routine time seems to be another important avenue for Lindy to assist ELLs to develop their understanding of English through repetition. She tends to use the same words when giving routine
instructions. “I try to make my directions the same for a long time, and then I’ll try and mix them up to make sure they’re really listening” she says.

Repetition and pre-teaching that build on children’s previous experiences assist Lucas and other ELLs to gain a better understanding of language in different contexts. As Lucas has been in this centre for almost one year and starts to talk more in English, Lindy tends to encourage Lucas to express his ideas verbally in English. For example, once Lucas showed her the castle made by him and his friend. Lindy encouraged him to describe which part he contributed to the castle. “What part did you do?” She asked. Lucas answered with hand gesture “This part and this part”.

4.2. Mary: Including children in group activities with body language and action games

At about 9:30 am one winter morning, I walked into the Long Day Care Centre located beside a busy road. A colorful glass door behind the gate marks the centre on the road. Behind the door, a corridor leads to three rooms for three different age groups. Each group has a separate backyard for outdoor play. Mary’s room is in the middle and caters to 3-4 year-old children. I opened the door but found an empty and quiet room. Where were the educators and the children? While I was puzzling over this, a burst of laughter came from the backdoor. They were in the backyard!

Stepping into the backyard, I was excited by the active sight in front of me. Mary was leading her group doing exercises under the warm winter sunshine in the bright backyard. “Next, we do kangaroo jumps” she said happily and started to jump. All children followed her and jumped behind. Emma and Imogene, the focus children, ran and jumped with the group. They held hands together and giggled cheerfully. “All right, bend your knees. Emma, bend your knees”. Mary did the action while talking to her. Emma and Imogene then bend their knees by following her. All children laughed while doing the actions, their laughter covering the traffic sounds from outside the fence.

After the exercise, children had a free play in the backyard for about one hour before Mary gathered them again to sing action songs. Before lunch, Mary played a game of musical statues. Emma and Imogene actively participated in these activities. When they were confused by the instructions, Mary guided them with body language. For example, when Emma won the statue game at last, Mary said “Emma, come to get your prize.” But Emma walked away from her, Mary then used her hands to guide Emma taking a prize from a bag.

Mary is a vibrant educator who has four years experiences in early childhood education. She claimed that she doesn’t have a lot of experience working with children who learn English as a second language. About one third of the children in her group are from non-English backgrounds. Mary tries to involve these children in group activities with action songs and games. She found ELLs, especially Emma and Imogene, enjoy these activities. Using body language and actions seem to be Mary’s main strategies to help ELLs settle in the group and understand the new language. She tends to exaggerate her hand gestures in interactions with them. “I found I’ll use my hands a lot. I do like, I tap my head and ‘go to get your hat.’” Her strategy is also reflected in her actions when teaching the concept of “Yes and No” to Emma and Imogene.

“And lately they are starting to learn ‘yes’ and ‘no’ [in English]. So I will be like, ‘Oh, would you like more biscuit?’ if they say no, I will put them away. And then they’ll go ‘yes’, and then I will give it to them. So I’m trying to get them to learn the concept of ‘yes’ and ‘no’ now. So that’s bit funny sometimes, ‘cause they looked at you like: why are you taking the biscuits away from me?”

4.3. Rae: Making language meaningful with abundant visual aids

Often in the morning, I see Rae standing at the door and greeting children when they walk into the room. What impressed me is that she greets Korean or Chinese children in their home language. These children answer her in English or their home language. The preschool at which Rae works is located in an area with fairly large Chinese and Korean communities. Over seventy percent of children in this preschool are from Chinese or Korean backgrounds. Rae showed interest in fostering these children’s home language and she is learning Korean. This preschool has a big yard (close to a thousand square metres) for fifty children that are divided into two age groups: 3-4 years old, and 4-5 years old. Rae works with the older group.

When the day starts at about 9:30 am, Rae usually gathers the children in front of a felt board and discusses the weather, date, day and seasons while asking children to place accompanying pictures on the board. For example, when she talks about the season, she may ask who knows what season it is now. After the children say “winter”, she will invite a child to come to the front and choose the picture of winter from a small basket and place it on the board. This activity is usually followed by another discussion about routines of the day, during which she displays the routines with pictures that are placed in another basket.

Walking into Rae’s room, I noticed a range of different-sized baskets that are not only full of toys, but pictures. Rae has pictures everywhere! The
contents of the pictures include the routine activities (e.g. wash hands, drink water), the items in the preschool (e.g. dust pan, painting easel), children’s belongings (e.g. lunch box, hat), and the concepts that are always used for educational activities (e.g. colours and shapes). The pictures range in size from A4 to small pieces that are suitable to hang on key rings. Rae stated that the key rings pictures are popular with the children. She told me that Jacky, the focus child, showed a keen interest in them as he just started to use English to communicate with simple words. The key rings are convenient for him to carry around. When he has difficulty in expressing ideas properly, he can flip over the pictures hanging on the key ring and choose one that help express his ideas.

To Rae, visual aids play an important role in interaction with and education of ELLs. Visual aids help ELLs to understand the meaning of language in conversation. They are very handy in the preschool.

“They [visual cards] are all over the place and it is very important. I find in practice it is very powerful when the visual aids are in different sizes. So I have hundreds in the room. They are in different baskets.”

This practice might be partly due to the high percentage of ELLs in the preschool. It is observed that pictures are used often by educators in routines, such as they show the picture of washing hands when asking children to do so. Pictures seem to be necessary for communication when the majority of the children have difficulties in understanding the educators’ language.

Besides pictures, Rae frequently uses props in educational activities. She once read a book introducing Australian plants. After a few minutes, some children including Jacky were unsettled. Rae took out a basket that was full of different types of bark. Some pieces were introduced in the book. She displayed the pieces of bark and invited children to touch them and tell which is smooth and which is rough. Jacky was attracted by the pieces of bark and touched them a few times. They helped him understood more about the information presented in the book. He seemed to have more interest in the book afterwards and listened to the rest of the story sitting in a settled manner.

4.4. Virginia: Fostering ELLs’ confidence in using English through repeating and multicultural activities

Virginia works at a long day care centre located in a suburb where the number of Asian residents has recently increased rapidly. According to Virginia, Asian children in this centre, mainly from Chinese and Korean backgrounds have increased from approximately five to about fifteen in a few years, accounting about thirty percent of children at the centre. She felt that there is a need for her to increase knowledge in the education of more ELLs. The centre has two rooms. Blue room is for toddlers aged 2-3 years old. Red room caters for preschoolers aged above three. Virginia works in Red room.

Walking into Red room at the first time, I was drawn to a group of children dancing vigorously in front of a big TV screen rotating through pictures of landmarks of different countries. Riana, the focus child was dancing in the group too. However, she was soon attracted to the activity that Virginia was doing at a table. She went there and sat next to Virginia. “Riana, do you want to make a Chinese flag?” asked Virginia as she guided children to make some national flags. Riana nodded her head and looked at a piece of red paper near another child. “Do you want to ask Felix to give you the paper” Virginia asked. Riana nodded her head again. Virginia asked Felix “Can you please pass the paper to Riana?” Felix followed her instruction. Virginia then said to Riana “Say thank you to Felix.” “Thank you” Riana said in a small voice.

Virginia noticed that many ELLs lack confidence in communicating with educators and peers. She showed concern about some perceived difficulties in her relationship with ELLs caused by language issues.

“But they don’t understand what I am saying, so it is hard to communicate and it can be very scary for them. So they do not want to come to me at first because it’s all about trust and I can understand how it could be very scary when you’re not understanding.”

She stated that making children comfortable and building up confidence is a central element in developing a new language and initially, bilingual staff (currently two full-time) play a critical role.

“So having Winnie (Chinese staff) and Kelly (Korean staff), it does help that initial period, just for them to find somebody that they feel comfortable with. They'll see their parents communicating with them, so they start to feel more comfortable. Then they are confident, because that is the main thing that many things can build on, the language and other areas.”

In order to help ELLs develop confidence in using English, Virginia used the strategy of repeating stories and songs. For example, she may guide children to sing songs first in a small group and then give them opportunities to sing in the big group.

“We encourage children to take their turn to take a leadership role to sing for the group. It can start in [small] groups if they are not as confident. So they are becoming more familiar with the repetition, and then give their turn.”
Multicultural activities such as making national flags are often seen in the centre. To Virginia, though multicultural activities are not directly connected to language education, they help develop ELLs’ sense of belonging, in turn, increasing their confidence in communicating in the new language. Some language activities reflect her idea about foster children’s sense of cultural identity.

“We do that across the board. With songs, we learn different cultural songs, different languages... So that they are becoming more of the different cultures. That is within our centre and then the Chinese children themselves get a chance to feel a part of it.”

4.5. Anna: Including ELLs as one of the group

Growing up in the country, Anna describes herself as an uncomplicated and positive person who has learnt a lot from her experiences in Sydney. Educating and caring for ELLs is one of the things that she is currently learning because of the wide diversity of children and families that she encounters in the city. She is a new room leader of the 3-4 years old in her centre. This centre is located within the campus of a large organization consisting of many buildings. Most parents of children at the centre are professionals from different cultural backgrounds. Up to forty percent of preschoolers in Anna’s group are from non-English backgrounds.

Anna likes to set up big areas with a wide variety of props and furniture for children to play freely in small groups, interacting with one another in any language. Elli, the focus child who was quiet most time in the centre, usually spends a long time in home corner or dress up corner with her Chinese friends, playing make-believe games in Chinese. Anna occasionally joins their play. Once, when Elli and Samantha dressed up as princesses, Anna suggested how about putting a princess crown on as well. She used her hand gestures to show putting a crown on her head, then pointed to a box and suggested that the girls look for the crowns in there. Samantha quickly went and got a crown; Elli went there later but couldn’t found one. Anna then pointed to another box and asked Elli to check there. Elli followed her instruction and found another crown. She went back to play with Samantha happily.

Anna uses a lot of body language in her interactions with Elli and with other children regardless their background. She stated that she didn’t apply any specific strategies in the education of ELLs. Though she used hand gestures and props very often, it is not specifically for ELLs, but for all children.

“We have a number of those children [ELLS] come here. I suppose, we don’t necessarily do anything extremely different... I will definitely use a lot of hands gestures, of course, you know visual things. Actually I did it to other children too, because some even though they speak English, they still don’t listen to you.”

It seems that Anna’s main strategy is to address ELLs’ needs in inconspicuous ways during daily interactions. She wants ELLs to feel comfortable without singling them out from the group. When reading a story to the group, she doesn’t insist that children sit on the mat and listen to the story to the end. She allows children to move away from the mat and engage in other quiet activities if they lose interest in the story. For example, once she read a book that lasted for around fifteen minutes. Elli and a few other children walked away about half way through the story and played puzzles on another mat. Anna observed that but she didn’t say anything to them. She continued reading the whole story to the rest of the children. She explained to me afterwards that she doesn’t want to force children to sit on the mat to listen to a story that they have difficulties in understanding. She said that she believes these children will finally be settled in group story time and that there is no need to push them.

5. Discussion

Educators play a critical role in shaping ELLs’ language experiences through their educational strategies and daily interactions [3]. Educators’ language practices have a significant effect on ELLs’ language development [2]. The purpose of this study was to investigate how the five Australian educators support ELLs, specifically Chinese children, in daily practices. These portraits display the complex and varied strategies employed by the educators in their different settings.

The five educators’ practices were all closely related to the context in which the educators and children were engaged. The concept of context is a core consideration in Cummins’ second language acquisition framework. According to Cummins [2], contextual support is essential to young ELLs’ language development because it provides clues for the meanings of language. As showed in Figure 1, Cummins categorizes the language activities into four categories: context-embedded and cognitively undemanding (A type), context-embedded and cognitively demanding (B type), context-reduced and cognitively undemanding (C type), context-reduced and cognitively demanding (D type). B type of language activities is most effective for the support of second language acquisition.

All the five educators used many context-embedded and cognitively undemanding activities (A type) in their interactions with the focus children. Lindy and Virginia organized the most context-embedded and cognitively demanding
activities (B type). Lindy’s strategy of pre-teaching key words of stories helped Lucas and other ELLs to be prepared for the story, making the activity comprehensible and interesting to these children. She also encouraged ELLs to take books home and read them again with parents, through which their interests were extended and their knowledge was reinforced. This practice is very effective in enhancing ELLs’ competency in listening and reading skills [3]. Though her initial intention was more focused on increasing ELLs’ confidence, Virginia’s strategy of repetition of stories and songs positively influences their language skills. Repetition not only increases ELLs’ confidence, but connects with their previous experiences enabling the activities to be more comprehensible and appealing [11]. Rae valued visual aids in communication. There were two situations for the use of visual aids in her centre: daily conversation and group activities. When the visual aids were used in daily conversation, the conversation was supported by the context, but it was cognitively undemanding (A type). For instance, educators used a picture of washing hands to instruct the children. However, using visual aids in group discussion or story reading is more cognitively demanding (B type). For example, Rae used the basket of bark to assist Jacky and other ELLs to understand the book she was reading. Mary and Anna used a great deal of body language in conversation. Their language was easy for ELLs to understand because of their gestures. These language activities are of the context-embedded and cognitively undemanding type (A type). None of the educators implemented context-reduced and cognitively undemanding activities (C type) in their practices. However, context-reduced and cognitively demanding activities (D type) were recognized in some educators’ practices. This is obviously evidenced in Anna’s story reading activity. The story she read with the group was too challenging for Elli and other ELLs, resulting in their loss of interest. Though these children had the freedom to do something else, they lost an opportunity to learn from the story.

While portraiture allowed me to uncover goodness in educator’s practices, this process similarly identified challenges that the educators faced. Mary and Anna seemed to lack holistic approaches in their practices. They relied heavily on body language at the expense of other strategies when interacting with the focus children. Anna’s statement of interacting with Chinese children and other ELLs in the same way as with other children in fact raises a concern. The gap between ELLs and other ELLs in the same way as with other children is highly valued. The national curriculum framework, the Early Years Learning Framework, emphasizes children’s sense of belonging and their connectedness with their cultural and linguistic background. These factors may underpin educators’ positive attitudes and practices in supporting ELLs. The challenges in these educators’ practices seemed to be influenced by their knowledge and understanding about how to educate ELLs rather than by the social power outside the early childhood centres. This finding indicates that it is essential for educators to maximize their awareness of different types of language activities and their implications for language development in order to provide optimal opportunities for ELLs.

Another finding from the portraits is that besides educators’ knowledge and experiences, their practices relating to ELLs’ language education seemed to be affected by the proportion of ELLs in their rooms. For example, Rae used many visual aids in her preschool to assist communication. The observation data showed that this practice was necessary due to the high percentage of ELLs in the setting (see Table 1) who required assistance with communication between educators and children. Educators had to frequently use pictures to explain their instructions. Likewise, Lindy’s strategy of pre-reading stories was based on her idea of language education as well as on her setting, where the number of ELLs is small. The environment allowed her to pre-read a book to a small group. However, the same strategy would be difficult for Rae to apply when the majority of children in her room were ELLs. Rae’s strategy of using props for story reading seemed to be more appropriate for her group. Additional research could be undertaken to examine the exact nature of the influence of educational environments on educators’ practices relating to ELLs.
6. Conclusions

From the portraits of this study, it is obvious that differences exist among the educators’ understanding and their competence in supporting ELLs’ language development. While all the educators held a positive attitude to assist ELLs, however, some were not fully aware of effective strategies that would better benefit ELLs. Providing information for educators to increase their knowledge and skills for supporting ELLs is necessary.

Australian educational settings are experiencing a rapid increase of ELLs due to the high level of immigration. Working with ELLs has become a common issue confronting many educators. The findings from this study help inform pre-service and in-service education programs in relation to the language education of ELLs in early childhood settings.

7. Acknowledgement

The author thanks the educators for their participation in the research and for sharing their time and ideas so generously.

8. References


Session 36: Higher Education

Title: Saving Intentions of University Students – A Case of Sri Lanka
(Author: Balasooriya, B. L. J. S.)

Title: Teaching, Research, and Service at an Emerging Research University: The Challenges of International Faculty
(Author: Darkhan Bilyalov)

Title: Re-thinking Academic Staff Transformation: Power, Identity and Transformation in South African Universities
(Authors: Michael Cross, Malau David Matsepe)
Saving Intentions of University Students – A Case of Sri Lanka

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Abstract

Mobilization of savings is vital for any country, especially for developing economies to maintain the required level of investment to achieve a sustainable economic growth and development targets over the time. Sri Lanka is currently facing the problem of the widening annual budget deficit due to low income from domestic and foreign sources while increasing government expenditure due to a number of reasons which is the main root course of the problem of insufficient national savings. Official data of CBSL prove that the personal and household saving is the largest component of domestic saving in Sri Lanka for many decades. This paper attempts to explore the savings intentions of university students in Sri Lanka and to identify psychological and socio-economic perspectives that effect on savings of university students. The present study is based on a cross sectional data set collected by a questionnaire survey. A stratified sample of students was selected from the national universities in Sri Lanka to gather primary data. The main analytical tool of the data analysis was the Probit regression model apart from other standard statistical measurements; such as measures of central tendency and dispersion and hypothesis testing. The data analysis reveals that savings amongst the university students is very low and a number of psychological and socio-economic factors are making a significant influence on low savings of university students such as gender, motivation, and willingness to save though they also have a monthly income.

References

Teaching, Research, and Service at an Emerging Research University: The Challenges of International Faculty

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Abstract

This paper describes international faculty experiences using the case of an emerging institution in a post-soviet context. In particular it summarizes the main challenges that faculty face as they engage in teaching, research, and service in the institutional context of the Emerging Research University. The university is a major government investment in a single institution to spearhead research excellence and national education reform. Unable to draw sufficient academic talent locally, ERU relies heavily on foreign academics (more than two-thirds in the case of the institution). ERU’s novelty, its institutional, societal, and cultural context poses significant challenges for academics.

The interview research conducted as a part of a mixed methods study of faculty experiences at ERU investigates these challenges situated in the context of a recently established university in a post-soviet context. Using exploratory interview research design, fourteen ERU faculty members were interviewed using a semi-structured protocol. The study findings highlighted a number of themes related to international faculty experiences of in the three main aspects of faculty work: teaching, research, and service.

When discussing their teaching, almost every interviewed faculty expressed their satisfaction with the academic ability and motivation of ERU students. They mentioned the ease with which they were able to teach ERU students who were rigorously selected from the brightest youth in the country. However, despite the praise, participants consistently pointed to the challenges with academic dishonesty, namely plagiarism and cheating. For example, a participant described a desperate case of students bypassing guards and breaking into a university office to steal examination questions. Two faculty members pointed to perhaps a bigger problem of what they perceived as tolerance of student cheating by the institution. In both cases they felt the pressure from the institution to ease the consequences of student misconduct. To summarize, faculty members believe that ERU students are highly able and motivated, while a number of them were caught cheating and the university administration was reluctant to follow-up with an adequate punishment.

Perhaps, the most frustrating area of work for the interviewed faculty was their ability to do research at ERU. Research-related challenges included: 1) the lack of funding; 2) the unproductive research environment; 3) the bureaucracy related to spending the research funds; and 4) the disadvantages that faculty in hard science face as opposed to their colleagues in soft fields. Overall, faculty members worry about the perceived shrinking of research funding, are perplexed by the multiple layers of bureaucracy when it comes to utilizing the funds, and constantly complain about the inadequate research environment.

Four key themes related to serving the institution consistently reappeared across the interviews: 1) high yet sometimes rewarding service load; 2) demotivation from the failure to influence policies; 3) the weak Faculty Senate, and 4) withdrawal of faculty from engagement in service. In general, many faculty members are motivated to make ERU a success, but at the same time there are warning signs of withdrawal of faculty from decision-making process. The
university Senate that on paper is one of the major bodies to protect and express the interests of academics often fails to initiate substantial change.

To summarize, ERU face multiple challenges as they engage in their teaching, scholarship, and service at this rapidly growing institution. Emerging Research University is an ambitious project and it is as good as the faculty who work there. Faculty challenges highlighted in this paper must be addressed if ERU wants to become a successful and internationally recognized research university.
Re-thinking Academic Staff Transformation: Power, Identity and Transformation in South African Universities

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Abstract

One of the major challenges in higher education is behind the inability displayed by South African universities in recruiting and retaining black staff members, a highly contested issue after apartheid. This is certainly one of the major challenges facing higher education in South Africa today. Related to this particular problem, two main sets of literature can be identified in the South African context. The first set concerns studies that predominantly deal with statistical equity profiling, patterns and trends in university staff. These studies discuss academic staff transformation using statistical equity profiling as a means of identifying the extent of demographic change, i.e. measuring how institutions are progressing in terms of structural dimensions of transformation and in terms of changing the demographics of their academic staff with reference to government policy on employment equity. They generally privilege quantitative methods in their analysis of academic staff transformation. While useful in mapping out the pace of change, they do very little in providing an understanding of the root causes of black staff underrepresentation, particularly the experiences of them, whether enabling or constraining.

The second set include those who go beyond staff profiles to deal with the experiences and meanings of underrepresentation. These scholars tend to suggest that formal structural barriers are removed through legislation which includes employment equity stipulations. They further point out that informal mechanisms of exclusion such as institutional culture become increasingly important in preserving privilege and as a transformative intervention. Within these, there are those who focus on race and class. These two categories of literature have broadened our understanding of the impact of race, gender and class exclusion in university employment practices. Furthermore, there are those who tackle issues of underrepresentation of academic staff from the diversity point of view. Criticism of this category of studies is that it tends to prioritise culture and cross-cultural interaction, and in the process, overlook structural inequality.

Overall, a neglected analytical dimension in current studies is the role of power and identity within the discourse of academic staff transformation. This exploratory paper aims to look at the discourse of underrepresentation of black academic staff in South African universities with reference to the role of power and identity using the University of the Witwatersrand as a unit of analysis.
Session 37:  Global Issues in Education and Research

Title: Visual Literacy for Teachers using Video clips from a Gender Perspective
(Author: Laura Triviño-Cabrera)

Title: Contested voices: School Children Envision Sustainable Learning Environments for HIV-affected peers in South African Rural Schools
(Author: Fumane Portia Khanare)

Title: A Phenomenal Study of Parental Attitudes towards the Professional Education of their Daughters in Karachi
(Authors: Nusrat Ali, Muhammad Saleem Khan)

Title: Who are You? An Exploration of Conflicted Identities inside Bangladeshi Madrasahs
(Author: Syeda Shagufa Hossain)
Visual Literacy for Teachers using Video clips from a Gender Perspective

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Abstract

This proposal deals with explaining a work in progress that is being develop by the Department of Social Science Education in the Degree in Primary Education Teacher Training and Master in Secondary Education Teacher Training of University of Málaga, in relation to discussing feminist theory. This complicated situation was not a simple anecdote. It was a problem detected by most universities both national and foreigner ones [1] [2] [3] [4] [5] [6].

Therefore, numerous publications have expressed the difficulties in explaining this kind of topics called “controversial issues” [7]. On the one hand, students could think that teachers that explain feminism/s or gender issues are “feminazi”. On the other hand, in their opinion, they are being indoctrinated by their teachers. Therefore, numerous publications have expressed the difficulties in explaining this kind of topics called “controversial issues” [7]. On the one hand, students could think that teachers that explain feminism/s or gender issues are “feminazi”. On the other hand, in their opinion, they are being indoctrinated by their teachers. Then, we have to think how women of different generations could be considered natural enemies [8]. Is there a “postfeminist generation” or a “millenium generation” that is not able to reflect on the influence of mass media? If such is true, why can not we think about that influence?

Then, what can we do? The key is in popular culture. Therefore, we can consider popular culture as pedagogy. I thought about the teaching of feminism issues by using the videoclips from female pop artists, specifically, “If I were a boy” [9], by Beyoncé. In this video, Beyoncé shows the difficulties women face when they want to become a professional in any field. As a result of watching this video, my students showed interest, enthusiasm to learn feminist topics. For this reason, I started to think about the possibilities of introducing visual culture, media culture, popular culture... in my classrooms to promote critical thinking and social commitment in the postmodern society.

Nowadays, we are working on a project on the problems involving the extreme degree of audiovisual contamination that teachers and students face each day, we need to reflect on the influence of the media, and how these are changing the pace of history and the life of humanity at the present time, as well as reflecting on what impact they will have. For this reason, we believe in the need to deal with the popular culture, videoclips, and in order to do this, we must make use of visual literacy. The post-modern society that we live in requires critical reflections that should be dealt with in classrooms on the effects of the media. We think that if students understand the complexity of their world and the numerous characteristic approaches of postmodern society, they will be more tolerant and empathetic than if they only learn traditional history that cannot be questioned.

References


Contested voices: School children envision sustainable learning environments for HIV-affected peers in South African rural schools

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Abstract

The school in rural South Africa is inspirational and for many children affected by HIV and AIDS, school is as vital as food and medicine. Therefore, South Africa continues to focus on how schools can prevent HIV and AIDS and improve holistic well-being of the children. In doing so, rural children are afforded opportunities to be improve their agency in care and support in the context of HIV and AIDS and re/creating enabling learning school environment.

1. Introduction

HIV and AIDS left many children with chronic adversities, often having a negative impact on their learning environments. This is even more so in an impoverished rural school context. My journey of becoming an academic doctor has generated fresh insights on the importance of rural school children’s participation in response to the HIV pandemic - participation not only as helpless and dependent on adults but also as children with abilities and inner resources. The researcher’s objective in this paper portray and discuss rural school children’s own constructions of care and support provided to HIV-affected peers in a rural school context.

2. Methods

A qualitative approach using collage, a visual arts-based method, was used with 20 school children which were purposively selected from two rural schools in KwaZulu-Natal, South Africa to co-produce data. Four collages were created about how rural school should look like in response to HIV-affected peers. Thematic analysis was used to report results of the participants.

3. Results

The results suggest a need for improving existing collaborations within the school setting. This includes strengthening interpersonal relations between teachers and school children and amongst schoolchildren, effective school leadership and re-thinking school policies that are responsive to the needs of rural school. Lack of interaction between the school children, teachers and principal limit any form of participation, either of identifying challenges or solutions in response to HIV-affected peers. School children were also concerned with school’s deterrence from working with community members. Significantly, the findings show that HIV response is necessary, but it is not enough if children’s voices remain contested and remain absent from a discussion about what their own care and support in a rural school context should look like.

4. Conclusion

The researcher concludes that, incorporating participatory visual arts-based methodology (such as collage) might increase dialogues but could also bring in to focus, the school children interesting ideas in re/creating sustainable learning environments for HIV-affected peers in South African rural schools visually. Collage also has the capacity to enrich and improve school children skills in many ways that are not always immediately obvious.
A Phenomenal Study of Parental Attitudes towards the Professional Education of their Daughters in Karachi

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Abstract

Education is the process of bringing individuals aware of their own reality in a manner that leads them to the effective adjustment with the environment. Females’ participation is vital to reducing hunger and poverty and promoting the family welfare. Education is the right of men and women both. Female education is more needed rural areas as compared to urban areas. Without educating the women of the country we cannot think of developing our nation. It is a fact that women are the first teachers of their children. Hence, if mothers are well educated, they can play an important role in shaping and molding of their sons and daughters. The main purpose of study was to identify the barriers of female education and the attitude among the parents. The present study researchers selected a quantitative study to explore the highlighting problem in the particular areas. Through the stratified random sampling selected a sample size from each stratum and generalized whole population. Chi-square test was used to test the validity of the data. The conclusion shows attitudes of parents somehow influence their daughters’ education, particularly those who are living in countryside. Another big challenge of female education is co-education system in our society is higher which directly subjected to parents unfavorable attitude towards their daughters’ education. In this modern era various organizations are working for female education in rural areas where females are considered as house working ladies, now it’s time to work more to change parent’s attitude towards their daughter’s education.
Who are You? An Exploration of Conflicted Identities inside Bangladeshi Madrasahs

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Abstract

This paper examines the identity crisis that students face in Bangladeshi madrasahs. Erik Erikson’s theorizing of identity crisis in youth is explored in the context of madrasahs in Bangladesh. A thorough literature review is conducted on the historical context of the country and its role shaping identities of madrasah students. The role madrasahs have played in the history of Bangladesh and their increasing popularity for conservative parents in Bangladesh is explored in light of existing literature. Ghosh et al and Scott Atran’s recommendations and theoretical frameworks are used in understanding the reasons which motivate the youth towards violent extremism and how to counter it in a proactive rather than a reactive manner. A multi-pronged approach fostering an environment where vulnerabilities of students are embraced and a careful balance of care and critique is used to ensure that they are encouraged to engage in critical thinking is recommended.

1. Introduction

In psychology, the term identity crisis refers to the failure to achieve ego identity during adolescence[1]. The stage of psychosocial development in which identity crises may occur is called the Identity Cohesion vs. Role Confusion stage, during which adolescents form their self-image and endure the task of resolving the crisis of their basic ego identity. Successful resolution of the crisis depends on one’s progress through previous developmental stages, revolving around issues such as trust, autonomy, and initiative. When left unresolved, these crises of identity can manifest as violent conflict in nations.

In recent times, Bangladesh has witnessed a rapid escalation in violent conflict, both as a result of internal conflict between major political parties and due to the emergence of transnational jihadist terror (as reported in the inquirer.net[2] and covered extensively in the international media). On the night of 1 July 2016, five militants took hostages and opened fire on the Holey Artisan Bakery in Gulshan Thana—an affluent area with many embassies in Dhaka, Bangladesh. 29 people were killed, including 20 hostages (18 foreigners and 2 locals), 2 police officers, 5 gunmen, and 2 bakery staff [3]. While some attacks have been linked to international terrorist groups such as Daesh and Al-Qaeda, local politics has also been volatile and violent in the country. One political party, the Jamaati-Islami (heavily criticized for its role during the liberation war as the strongest supporters of a unified Pakistan) developed into a breeding ground for Pakistan-centred Islamic fundamentalism through its network of religious schools, or madrasahs, which may contribute to extremism and terrorism [4].

However, Ghosh et al find in their research that regardless of whether the violent extremism seen in the country is perpetuated through local political narratives or international terrorist groups, research has shown that much of violent politics and violent extremism engages the young population between the ages of 15-25, an age where one is unsure of one’s identity. The conflict seen is a manifestation of the internal conflict that occurs within the Self as a result of not being able to resolve one’s identity crisis. In Bangladesh, this crisis of identity is a result of the “Muslim versus Bengali” ideological clash, seen in it’s most potent form in madrasah schools - religious schools that privilege a transnational pan-Islamic identity over a particularist, secular Bengali one, a conflict of identity with deep roots in the 1971 liberation war. In what follows, this paper will explore the existing literature available on madrasahs in Bangladesh to shed light upon how conflicted identities are born within these institutions.

2. The Rise of the Madrasah Education System

When East Pakistan and West Pakistan parted to form Bangladesh in 1971, it was a violation of the pan-Islamic ideal that all Muslim areas of former British India should unite in one state. The Awami League, the political party which led the struggle for independence, grew out of the Bangla language movement and was rooted in Bengali nationalism, rather than religion. Despite a brutal occupation by the Pakistani army and
local Islamist collaborators, an independent and secular Bangladesh was born, and came to be the only country in the subcontinent that combined a single dominant language group with a predominantly Muslim population, and very few ethnic and religious minorities. The Muslim element, it must be stressed, has always been present; otherwise what was East Pakistan could have merged with the predominantly Hindu Indian state of West Bengal during Partition, where the same language is spoken. Deep cultural and social ties exist between Bangladesh and West Bengal to the present day as a result of our shared history and language. The importance of Islam grew in the newly independent Bangladesh as the Awami League encountered increasing political competition from the country’s powerful military, which began to use religion as a counterweight to the League’s secular, vaguely socialist policies [5]

To complicate matters further, there is an alternate collective narrative that is perpetuated by groups like the ISIS to promote the idea of a unified Islamic State governed by shari’ah law as an alternate to democracy and prevailing social injustice [6]. Similar utopian fantasies of pan-Islamic unity motivated the Jamaat-e-Islami party to oppose Bangladesh’s independence in 1971, acting as violent collaborators (participating in mass killing, torture and rape) with the occupying army in service of the ideal of a unified Pakistan [7]. While there is nothing inherent in any religion or culture that either encourages terrorism or prevents it from motivating violence, protection of collective identities has been used by all religions, as well as nation states, to justify violent extremist actions [4].

War-crimes trials for crimes committed by Islamist collaborators during the independence war were held under the International Crimes Tribunal in 2013, a domestic tribunal unaffiliated with transnational bodies. The trials culminated in the banning of the Jamaat-e-Islami and the execution of its leaders, many of whom were members of the Pakistani Islamic militia which opposed the pro-Bangladesh forces in the Bangladesh Liberation War of 1971. In 2013 [8], resentment festered amongst many who identified themselves as conservative Muslims, since they felt that the only party representative of their ideologies had been suppressed. At this time Bangladesh saw the rise of a madrasah based Islamic fundamentalist group in Bangladesh, unaffiliated with the Jamaat-e-Islami, Hefazat-e-Islam, that protested against the secular constitution of the country, democracy and the women’s equal rights policy of the government, an equal right’s policy in line with the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) [9].

There has been a neglect of this madrasah-based socio-political sector from both government and non-government bodies as well as international NGOs. There are several reasons behind the aversion to developing this medium of education. Firstly, the Bengali language movement, which played a critical role in the liberation war of Bangladesh, affected the madrasah communities negatively. The declaration under General Bhutto’s regime that Urdu was the language of the state was met with a strong resentment from Bengalis since it meant that they were at a disadvantage when applying for government positions, leading to a massacre of pro-Bengali student activists in 1952 and eventually the liberation of the country in 1971. During this time, madrasahs were placed in an awkward position, since traditionally a strong emphasis on Urdu had been placed in this area. Because some madrasahs continued their curriculum in Urdu, the government and civil society has often accused madrasahs of breeding anti-liberation war sentiments amongst their students.

Halbwachs [10] speaks of the power of language to communicate a collective memory, leading to the formation of an identity. In the case of Bangladesh, the struggle for independence war began attempts to suppress the Bengali language, resulting in a state where language has moved beyond its role as a communicative tool to playing a central role in formation of identity itself. Much of Islamic text is produced in Urdu, Arabic or Persian. As a result, those who identified themselves primarily as Muslims sometimes cannot fully integrate themselves within the “indigenous” Bangladeshi context, particularly given that the country was founded on liberal socialist principles.

As a result, secularist nationalists still harbour resentment against the madrasah sector. On the other side, the now banned Jamaat-i-Islami, a former political party founded in 1941 by Maulana Abul Ala Maududi that had grown out of the Deoband Madrasah movement, went to the extent of “alleging that the demand for a separate state based on modern selfish nationalism amounted to rebelling against the tenets of Islam” [11]. It is not surprising, therefore that the aged question “Are you Muslim or are you Bengali?” keeps remerging and is most resonant amongst the madrasah community.

It is important to acknowledge that madrasahs themselves have also resisted external interventions from NGOs. When NGOs first started operating in Bangladesh, they were often formed as part of Christian missionary organizations and undertook charitable activities in underdeveloped areas. In many cases they act as ‘front’ organizations, whose true long-term objective is evangelization [12].

The lack of positive attention to the madrasah sector from the national and international community has not made this medium of education irrelevant. On the contrary, conservatism and religious extremism in the country are on the rise [13]. Traditional parents, who
wish for their children to obtain marketable skills but at the same time develop proficiency of the Quran and Hadith, form the majority of those who are sending their children to state-sponsored Alia madrasahs. This ideology is particularly strong in those communities where religious schooling is the only socially acceptable form of education for adolescent girls. This implies that these communities will be reluctant to send their daughters to secular schools even with the provision of cash or food subsidies. Marriage-related motivations also influence parental choice of schooling for girls, since it is perceived that madrasah education instills traditional values that make their daughters more attractive in the marriage market [15].

A report in the Guardian estimates that there are some 6,500 Quomi madrasahs in the country with almost 1.5 million students. Quomi madrasahs are supported primarily by private donations, allowing these institutions to resist any efforts by the state to control, modernise or reform them. On the other hand, there are 7,000 or so state-supported Alia madrasahs, which follow a standardised syllabus that includes subjects such as English, Bengali, science, and mathematics [15].

3. Identity Crisis, Extremism and the Role of Education in Madrasahs

Desmond Tutu defines extremism as “when you do not allow for a different point of view; when you hold your own views as being quite exclusive; when you don’t allow for the possibility of difference” [16]. Ghosh et al cite a number of reasons for engaging in violent extremist behaviour, including a perceived threat to individual and collective identity, marginalization from mainstream society or a feeling of ideological necessity stemming from personal ideologies. While anybody may be susceptible to a perceived threat to identity, certain groups, institutions, and communities are more vulnerable than others. In Bangladesh this perceived threat is very strongly felt, as evidenced by the rise of madrasah based Islamist groups, within madrasahs. Bangladesh has two kinds of madrasah: private Quomi madrasahs and state-sponsored Alia madrasahs.

While it is Quomi madrasahs that are usually held responsible by the media for violent extremist ideologies, various reports have found that the perceived threat to Islamic identity is felt almost as strongly in Alia madrasahs. A comparative study between Alia and Quomi madrasahs found that 47% of students in Alia madrasahs report feeling isolated and marginalized [17]. While it is obviously possible to be both Muslim and Bengali, the perceived conflict between the two identities makes it difficult to mitigate between the two identity markers, i.e. the linguistic identity and the religious identity, and to form a whole that accommodates for both parts of the Self. This mitigation process is particularly difficult at what Erikson defines as the Identity Cohesion vs. Role Confusion period during adolescence, when adolescents are in the process of forming their self-image. As a result, individuals become conflicted about which identity to ground themselves in.

Violent extremism is one of the most gruesome dangers that is facing the world today, not only because it demands the sacrifice of lives and leads to gross human rights violations, but also because it erodes and extinguishes the slowly burning flame of culture that drives humanity forward. It epitomizes not the revival of traditional cultures, but their collapse, as young people detached from millennia-old traditions flounder about in search of a social identity that gives personal significance and glory [18]. In such a situation, the role that education plays in short-circuiting the process of evolution from fundamentalism to extremism, particularly in a nation where traditional values are in flux, is undeniable [4]. However, it is a gross oversimplification to identify the entirety of madrasah education as the sole or primary driver of extremism in Bangladesh. While madrasahs may breed fundamentalists and foster conservative Islamic values, the transition to breeding extremism or radicalization depends on what policies and programmes are implemented within these institutions.

4. Conclusion and Recommendation

Given the complex history of madrasah schools in Bangladesh, it is imperative that any solutions geared towards anti-radicalisation include, if not begin with, these institutions. A multi-pronged approach is needed to foster an environment in madrasahs where students come face to face with their own vulnerabilities and insecurities, and resolve their identity crises and accept their whole selves. Following this, an enabling environment that encourages critical thought must be developed in these schools.

While sweeping institutional reform of madrasahs may be difficult in the current, conservative climate of the country, introducing incremental changes through teacher training may be a feasible first step towards creating environments where empathy and tolerance are fostered rather than suppressed. In addition educators must be equipped with tools to recognize, understand and address the psycho-social factors that may lead to any stage in the path to terrorism. Affirming a strong sense of self among students will lead to reaffirmed identities that accommodate for the multiplici-
ties within themselves, identities that do not vacillate at being questioned.

An enhanced ability to engage in critical thinking and fair dialogue will enable students to develop greater resilience to extremist ideologies and help them navigate the imagined clash of allegiances between the nation-state and Islam. Ultimately all madrasah students, like all students, should be able to form independent and well-informed opinions.

Future solutions should seek modest, incremental reforms to teaching practices and pedagogical culture in both Alia and Quomi madrasahs. A careful balance of care and critique must be encouraged in madrasah educators, to help them resolve these deep identity crises and diminish the engagement of madrasah students in violent conflict.

5. References


Session 38: Inclusive Education

Title: 2e or not 2e: That is the question. Understanding the special needs of twice exceptional students
(Author: Catherine Wormald)

Title: A Successful Introduction of Project Based Learning for First Year Engineering Students
(Authors: Shoaib Zaidi, Komar Masroor, Danish Mahmood Khan, Madiha Shabbir)

Title: A Case Study of the Effectiveness of Social Stories to Enhance the Social Skills of a Young Child
with Autism Spectrum Disorder
(Authors: Tsz Kwan Cheng, Sum Kwing Cheung)

Title: The Relationship of Empathy, Altruism to Motivation to Blood Donation Among University
Students: A Predictive Study
(Author: Abdulhameed Saeed Hassan Alsulmbwi)
2e or not 2e: That is the question. Understanding the special needs of twice exceptional students

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Abstract

Students who are gifted with a learning disability also referred to as twice exceptional (2e), double labelled or gifted with learning disabilities (GLD) are a group of students who confound their teachers and parents with their ability to undertake and complete some activities at a very high level whilst at the same time demonstrating an inability to do other tasks which may be quite simple. These students can demonstrate gifted characteristics as well as the characteristics of learning disabilities such as but not limited to ADHD, Autism, Behavioural disorders, Specific Learning Disabilities (SLD). Current research in Australia has generally focused on specific case studies and there has not been national empirical research undertaken.

This research was conducted as a collaborative project between the University of Wollongong and the University of New England. A survey was developed which focused on what teachers know and understand about students who are gifted with a learning disability. The survey – Australian Twice Exceptional Needs Assessment Survey (ATENAS) - was adapted from a survey used in the US. Applications were made to undertake the research in all State and Territory Departments of Education, all Catholic Diocese schools and all independent schools nationally. Preliminary results support the findings of Wormald (2010) in that teachers have awareness of these students but are not necessarily able to meet their educational needs. This research will provide valuable data about these students, appropriate professional learning for teachers and indicate directions for future research.

1. Objective and motivation

There exists in Australian schools a group of students who are often not recognised in the classroom. They are students who are academically gifted and at the same time demonstrate a learning disability or disabilities. These students confound their parents and teachers with their ability to achieve amazing things but at the same time struggle with basics such as completing a task, remembering to bring the equipment needed at school and focusing in class. These students may be referred to in the literature as gifted with a learning disability (GLD), twice exceptional (2e) or double labelled.

In order for these students to achieve their potential there needs to be an understanding of the definitions of academic giftedness, learning disabilities and a combination of the two i.e. gifted with a learning disability or disabilities. In addition teachers need to have an understanding of the required legislation and policy with respect to students with a disability or disabilities.

This research was concerned with what teachers in Australia understood about students who are twice exceptional. A national focus is important as the majority of existing research has been undertaken in the US and it is necessary to understand whether the situation in Australia correlated with the findings in the US.

This research aims to answer the following research questions:
1. What is the general level of understanding about twice exceptional students related to practices among Australian educators?
2. Does training in gifted education enhance understandings about students who are twice exceptional?
3. What beliefs do educational professionals have with respect to the educational requirements of these students?
4. What beliefs do Australian educators have in relation to twice-exceptional students?
A Successful Introduction of Project Based Learning for First Year Engineering Students

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Abstract

We report a very successful introduction of project based learning (PBL) for incoming first year engineering students. After completing their twelve years of education, these students enter a four-year undergraduate programme in electronic engineering or telecommunications engineering.

NUDEUET is a highly competitive public sector engineering university in Pakistan. The competition for admission is high and highly motivated bright students and selected for admission. These students have solid foundations in mathematics and physics.

However, analysis of the graduating student’s skills indicated difficulties with applying their learning. They knew theories and formulas but did not display fluency in using this knowledge to solve problems. The curriculum and the methodology were both scrutinized.

Prior to this effort, traditional lecture based methodology was common. The laboratory exercises were also conducted in an established manner. The exercises were relevant to the theory classes. However, the application to real world problems was sparse.

It was decided to redesign a first semester course for the incoming class to incorporate learning through doing projects to improve the skills of applying engineering for solving problems.

2. Challenges

Two departments were selected for this pilot. The Department of Electronic Engineering had 140 first year students divided into two sections and the Department of Telecommunications Engineering had a single section of 70 students.

None of the faculty members who participated in this effort had any formal training or significant experience as a student in PBL. They had completed a year-long “final year project” largely without any structured guidance.

A strategy was devised to start the students with rudimentary projects. The vast majority of these students were unfamiliar and initially uncomfortable with doing any work without explicit and well-defined instructions. These students had scored very high marks in their examinations and there was a fear of making mistakes. They were afraid to attempt actions where they were unsure of the certainty of
success. We had anticipated this but the severity of their trepidation was surprising. Our analysis had been validated.

With much perseverance, cajoling and encouragement, the students immersed themselves in learning through projects. There were a few “early adopters” which transitioned into the bulk and was followed by a trailing tail of reluctant students. By the third exercise, we had general acceptance.

The traditional approach had been that one had to study a component before using it. Thus microcontrollers, timers etc. had largely not been used by first semester students. In our PBL based course, the students were asked to learn “what was needed” to use components like timers. How a timer worked could be studied when they encountered it in their course work.

Much inspiration and guidance was found in reviewing three decades of “learning by doing” work that Dr. Woodie Flowers [1] has championed.

Weak presentation skills have been a common complaint from the employers of our graduates. The students were provided extensive training in presenting their work.

3. Results

The results of our introduction were astonishing. Faculty members, who were not involved in teaching this course, were asked to provide external evaluations. The confidence and the ability, which this class exhibited, were unmatched. Representatives from the second year (sophomore) class approached the administration of the departments and requested that they too be provided such training. Such requests are unprecedented.

Seeing the results from this pilot, several teachers are now incorporating project-based elements into their classes.

4. Discussion

PBL is now a mature method. It was important to understand why it had the large impact we observed.

There is extensive literature about PBL. The paper from Graham [2] describes a number of best scenarios of PBL in UK. Our exercise was relatively simple as compared to the ones described there.

One factor is the preparation of our incoming students. As stated earlier, the admission process is highly competitive and the students over prepare for their examinations. What is lacking is familiarity and experience in using this learning for anything beyond solving exercise or examination problems.

A second factor is the availability of information on the web and the ease of searching for it. In a matter of minutes, the students can find a circuit for a power supply or a metronome. They are able to compare different approaches from various websites.

In some ways, their early designs can be called examples of “web-empiricism”. If the requirement is for a 5.3 volt power supply, and they only find designs for a 5 volt and a 6 volt supply. They then have to estimate how to make a 5.3 volt supply. At the early stage of their first semester, they do not have the capability of designing an exact solution nor can they perform PSpice simulations. It is trial and error but aided by the vast resources of the web.

This exercise has been extremely beneficial for faculty members. Most of them did not have any prior exposure to PBL. The results of this are encouraging them to incorporate elements into their own teaching.

5. Continuing and Future work

ABET now emphasized teamwork as a desired outcome of engineering education [3]. However, teaching teamwork is challenging [4]. This is especially so in a socially stratified society.

An exercise has been designed in which seven projects are to be completed in a semester. For each of the projects, one’s teammates are randomly picked and not repeated for the duration of the class. There are two goals of this exercise. It teaches the students to learn with new teammates and to be able to do it quickly. A second reason is to ensure that the students work with others who come from very different socio-economic backgrounds. This had not been common and was identified in one of the evaluations.

A second exercise requires students to partner with those from other sections and other disciplines to complete their projects. Both interdisciplinary work and the ability to schedule tasks in the presence of time conflicts are addressed.

These exercises to build teamwork skills are continually reviewed and revised.

When we introduced recording meeting minutes for the team, we observed a very high correlation in the quality of documentation and the clarity of presentations. These similarities were present across various groups. Interestingly, as a group improved their internal communication, their external communication also improved. Thus such exercises yield mechanisms to improve communication skills for engineering students.

6. Conclusion

Project based learning for first year engineering students at a public university in Pakistan is successfully implemented. It combines the learning from PBL with the advantages of accessing information through the web to teach empirical engineering.
The feedback from the students has confirmed that our method has tremendous benefits. They report tremendous improvement in confidence.

7. References


A Case Study of the Effectiveness of Social Stories to Enhance the Social Skills of a Young Child with Autism Spectrum Disorder

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Abstract

Social skills are of utmost importance in young children’s development. However, children with autism spectrum disorder (ASD) lack social skills, which creates challenges for them to interact and communicate with others [1]. This, in turn, might increase their risk of being bullied and becoming socially withdrawn [2]. It is therefore imperative to develop and implement effective programs for children with ASD with a view to promoting their social skills. To date, there is limited empirical support for the effects of the use of social stories alone on the social skills of Chinese young children with ASD. This study aimed to evaluate the effectiveness of a social story intervention in enhancing the abilities to make eye contact and stick to the conversation topic of a Hong Kong Chinese five-year-old child with level one ASD.

The social story intervention of this study consisted of 12 sessions. Each session lasted for about 15 minutes and consisted of two parts: (a) story reading, in which the researcher read the social story to or together with the target child; (b) story comprehension checking, in which the researcher checked the target child’s comprehension towards the story read by asking questions. The intervention was conducted once per week at school. To assess the effectiveness of the intervention, 15-second partial interval recording procedure and anecdotal record were adopted to record the target child’s abilities to make eye contact and stick to the conversation topic in each intervention session and the 15-minute group play time after each intervention session. Besides, the target child’s performance in the two areas during group play was observed in three baseline sessions (once per week over three weeks before the intervention) and two post-intervention sessions (one and a half weeks after and two weeks after the last intervention session). Last but not least, interviews were conducted with the target child’s mother and church tutor after the intervention, so as to understand whether the target child showed any changes in social behaviors outside school after attending the intervention sessions.

Results showed that the target child’s abilities to make eye contact and stick to the conversation topic both improved over the intervention sessions, and the positive effects sustained two weeks after the end of the intervention. Furthermore, the child was observed to take more initiative and show more willingness to make eye contact with others, even though they were not persons that the target child was familiar with. Compared to the ability to stick to the conversation topic, the target child was better in generalizing the ability to make eye contact to different social contexts and was more likely to make eye contact without adults’ prompts.

Findings of this study provide some support for the effectiveness of the use of social stories alone to enhance the social skills of Chinese children with mild ASD, including the abilities to make eye contact and engage in reciprocal communication. Thus, it is worthwhile to provide early childhood educators with more training on how to use social stories effectively to promote the social skills of children with ASD. In future, studies can be conducted to explore effective strategies for helping children to maintain the skills learnt and examine the effectiveness of social story intervention for young children with different abilities and needs.
References


The Relationship of Empathy and Altruism to Motivation to Blood Donation among University Students: a Predictive study.

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Abstract

The purpose of this study was to explore the extent to which empathy and major contributed to the variance in motivation to blood donation among a sample of volunteers. The sample consisted of 353 university students. The participants were blood donors of 58 females and 128 males, and non-blood donors of 64 females and 103 males recruited from colleges at the Omani Sultan Qaboos University. Tools of this study were developed, and their psychometric characteristics were assessed. The findings indicated that there was a significant linear relationship between independent variables and motivation to blood donation, and factor analysis of the motivation to blood donation scale extracted five factors with good loadings. The results of the discriminant function analysis classified the variable of motivation into three levels: (low, moderate, and high). The findings also revealed that empathy strongly predicted motivation. Altruistic behavior accounted for 92.1% of variance in motivation. In addition, there were significant differences between male and female blood donors in motivation and empathy in favor of males, while there were significant differences between male and female non-blood donors in motivation only in favor of males.
Session 39: Learning / Teaching Methodologies and Assessment

Title: Vocational Skills and Competencies in German VET
(Author: Stefanie Velten)

Title: M-Learning and the Usage of Quizzes as an Evaluation Tool in Bachelor Students
(Authors: Salvador Ruiz Cerrillo, Norma Alicia Cervantes Rea)

Title: Secondary School Students’ Assessment of Problems and Challenges in the Teaching/Learning of Physics in Nigeria
(Author: Patience C. Agommuoh)

Title: Instilling Lifelong Learning Skills through Game Based Learning for Indigenous Students
(Authors: Rachna Aggarwal, Siew Leng Lim, Aaron Mathews)

Title: Impact of Effective Teachers’ Training on Delivery of Practical in School Science Teaching: Improvement of Teachers’ Skills and Students’ Attitudes
(Author: Ziad Said)
Vocational Skills and Competencies in German VET

Stefanie Velten
Federal Institute for Vocational Education and Training, Germany

Abstract

Education is a key factor to equip people with the essential skills and competencies they need to deal with the upcoming economic and social challenges and to facilitate innovation and growth [9]. Analyses published by the European Centre for the Development of Vocational Training (CEDEFOP) demonstrate that the occupational group of “technicians and associate professionals” holding a post-secondary degree will be highly important in the future economy as nearly two-thirds of the future employment growth will be linked to this group [4].

In Germany, individuals beginning a post-secondary training before usually finished an initial vocational degree and gained several years of work experience. According to training regulations, post-secondary training enables participants to retain or to deepen their vocational competencies and facilitates job promotion. In fact, research documents that these individuals achieve leadership positions even more often than graduates holding a bachelor’s degree [6]. In addition, employees with post-secondary vocational certificates on average earn 25 percent more than employees holding certificates in initial VET [7] do. Although the labor market success of employees with a post-secondary degree is well documented, little is known about their vocational competencies.

In Germany, there is a lot of research on vocational skills and competencies [2] due to an ongoing output orientation in VET to strengthen transparency and comparability of skill acquisition. Thus, German researchers currently invest many efforts in developing test instruments focusing on competencies in initial VET.

In a current research project we would like to address the issue of acquiring vocational competencies in post-secondary VET in a technical occupational field aiming at investigating further competence development after initial VET. This contribution deals with the question of how vocational knowledge (that represents a key component of vocational competencies [12]) at the beginning of a post-secondary training is influenced by the individuals’ cognition (intelligence, prior knowledge), achievement motivation and work experience.

Employees starting a post-secondary VET in Electronics usually worked a certain time as Electronics Technicians in the craft or the industrial sector being responsible for detecting and resolving equipment malfunctions, installing electrical control systems and analyzing software programs [3].

Referring to Ackerman’s PPK [1] (intelligence-as-process, personality, interests and intelligence-as-knowledge) theory the impact of fluid intelligence and prior knowledge as well as achievement motivation on vocational knowledge are considered. A huge body of evidence documents the relevance of intelligence [11], prior knowledge [5] and achievement motivation [10] for training success. Regarding years of work experience Schmidt & Hunter [11] meta-analytically could not find any effect beyond general mental ability to predict training performance. Nevertheless, Longoria [8] found evidence that work experience measured more detailed on a task level could be more predictive for job related knowledge.

In the proposed presentation, data from 268 students at the beginning of their post-secondary training are used. A test on vocational knowledge and a survey are conducted, including a measurement of achievement motivation and the duration of work experience as well as the frequency of specific tasks performed during the last five years. Structural equation modelling demonstrates a strong direct and indirect effect of fluid intelligence on vocational knowledge. Work experience measured on...
a task level and related to the vocational knowledge does have an effect, whereas
years of work experience even reveal a negative effect. In contrast to expectations,
achievement motivation does not explain additional variance. Finally, results are
discussed and an outlook is provided on the ongoing research project as well as on
practical implications.

References


M- Learning and the Usage of Quizzes as an Evaluation Tool in Bachelor Students

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Abstract

M-learning environments are increasing in many countries as a teaching strategy, therefore, an analysis of this educational systems might be study in different contexts. The purpose of the following study was to analyze the usage of quizzes as an evaluation tool on a M-learning environment in Mexican Bachelor students. A mixed paradigm was used, with the support of action-research method. Quizzes were designed on NEARPOD® app were applied as part of a system evaluation in three different subjects that belonged to the Bachelor in Nutrition program, 48 Mexican students participate on the study. Partially results showed that the best grades on quizzes and NEARPOD® activities were for the subject of Nutrition in Obesity and eating disorders (78%), meanwhile, the lowest grades were for modified diets II (56%). In conclusion the usage of M-learning in bachelor students improve the evaluation system and student´s perception of this method.

1. Introduction

M-learning involves the use of mobile technology, either alone or in combination with other information and communication technology (ICT), to enable learning anytime and anywhere. [5]. Teachers must be trained on this teaching skills, according to the Policy guidelines for mobile learning of UNESCO published in 2013, but still, many challenges exist at this point. [5]. Nowadays exists many challenges to evaluate the student’s performance trough this kind of learning environments [4]

Therefore, analyzing the information above, a research question was created: How quizzes impacts the evaluation of Mexican bachelor students around a M-learning environment? Hypothetically, Quizzes encourage the performance and perception of Mexican Bachelor students, according to their built experiences with a M-learning environment.

There is some lacking about current information on the usage of M-learning in Mexico, specially on evaluation or assesment systems, this can be due to the recent entrance of this kind of teaching methods into the country [1]

2. Theoretical framework

M-learning, can be used itself as an evaluation system, but some authors had recommended that it exist many tools that can be used in order to have a more integral evaluation, inside this apps, tools or instruments, can be find: quizzes, forums, open ended questions, timed exams. [3]

Some challenges have been identified on the evaluation of an M-learning environments, these are: capturing and analysing learning in context and across contexts, measuring mobile learning processes and outcomes, respecting learner/participant privacy, assessing mobile technology utility and usability, considering the wider organisational and socio-cultural context of learning, and assessing in/formality. [4]

3. Method

The paradigm of this study was mixed (qualitative and quantitative), action-research method was used, in this way, researcher’s teaching practice was used as a media for gather and reach the main purpose of the investigation, a cross-sectional design was employed.

Quizzes were used as main tool for the research gather, it was used also the M-learning perception scale to measure student’s satisfaction at the usage of mobile devices for learning purposes, they were designed trough the app NEARPOD®, after teacher’s training.

Student’s perception was measured by a Scale validated by Kim et.al [2], composed by 16 items that measured different aspects of M-learning environments.
4. Results

After analyzing the first information, it can be inferred that the best grades on quizzes and NEARPOD® activities were for the subject of Nutrition in Obesity and eating disorders (78%), meanwhile, the lowest grades were for modified diets II (56%) and Program design in Nutrition on the first and second session respectively.

On the qualitative analysis after codifying the information of each resource, it was found that the categories with more average percent onto the sessions were: information, knowledge, diet, teaching and learning.

Results of m-learning student’s perception were exposed by the main result obtained on each item of the instrument.

Table 1. Grade’s from NEARPOD® resources in each M-learning intervention

<table>
<thead>
<tr>
<th>Subject</th>
<th>Resource (according to Nearpod resources)</th>
<th>Numeric evaluation (mean value)</th>
<th>Qualitative evaluation (mean categories)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition in obesity and eating disorders</td>
<td>Quiz</td>
<td>71%</td>
<td>Orientation, knowledge, transmission, teaching, environment</td>
</tr>
<tr>
<td></td>
<td>Quiz</td>
<td>78%</td>
<td>Information, knowledge, teaching, educational models, teachers</td>
</tr>
<tr>
<td></td>
<td>OEQ</td>
<td>56%</td>
<td>How do you consider the education for health in Mexico?</td>
</tr>
<tr>
<td></td>
<td>Poll</td>
<td>5% no answer 68% bad 18% very bad 5% good 5% excellent</td>
<td></td>
</tr>
<tr>
<td>Modified diets II</td>
<td>OEQ</td>
<td>56%</td>
<td>Soft, blended, hyposodic, liquid, modified in phosphorus, enteral, parentera, normal, clear, liquid, general liquids diets.</td>
</tr>
</tbody>
</table>

From the perception of the students, the m-learning scale results are shown on table 2.

Table 2. Results of m-learning student’s perception scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Main result</th>
<th>%</th>
<th>Item</th>
<th>Main result</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>two or three times per week</td>
<td>31.5</td>
<td>9</td>
<td>agree</td>
<td>51</td>
</tr>
<tr>
<td>2</td>
<td>sometimes during the day</td>
<td>48.6</td>
<td>10</td>
<td>very agree</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>none of the above</td>
<td>29</td>
<td>11</td>
<td>agree</td>
<td>41.3</td>
</tr>
<tr>
<td>4</td>
<td>others</td>
<td>39.3</td>
<td>12</td>
<td>agree</td>
<td>45.3</td>
</tr>
<tr>
<td>5</td>
<td>entertaining</td>
<td>55.3</td>
<td>13</td>
<td>agree</td>
<td>54.3</td>
</tr>
<tr>
<td>6</td>
<td>lack of money</td>
<td>48</td>
<td>14</td>
<td>very agree</td>
<td>60</td>
</tr>
<tr>
<td>7</td>
<td>couple of hours</td>
<td>38</td>
<td>15</td>
<td>i am not sure</td>
<td>47.6</td>
</tr>
<tr>
<td>8</td>
<td>technology practice</td>
<td>60</td>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Conclusion

M-learning is an increasingly teaching and learning method in all over the world, the main purpose of the research has already reached, because an evaluation process was applied obtaining an assertive and punctual academic results, therefore, Quizzes improve the evaluation system at providing resources to have a more holistic assessment, such as: qualitative categories, meanings and representations of specified knowledge. At the other hand, student’s perception was measured by a scale, were results showed that the usage of mobile devices may improve learning value during the course and its recommendable for other subjects (60%). It is concluded that the usage of M-learning in bachelor students improve the evaluation system and student’s perception of this method.

6. References


Secondary School Students’ Assessment of Problems and Challenges in the Teaching/Learning of Physics in Nigeria

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Abstract

Physics which is one of the core sciences is crucial to understand the world around, world inside and world beyond us. Physics is the bedrock of science and technology because many of the tools on which the scientific and technological advancement depends are the direct products of Physics. The principles of Physics have been widely used for various economic, scientific and technological advancement such as in information technology, which has reduced the world into a global village through the use of satellites and computers. Despite the importance of Physics to the scientific and technological development of our nation, understanding of the subject had dwindled over the years and performance of the enrolled students had not been encouraging. Improving the learning of Physics and achievement in it requires a lot of input from the teachers because the role of the teacher in the classroom is important. Many factors have contributed to poor performance and achievement of students in physics. It is based on this that this study employed a descriptive survey to investigate senior secondary school students’ assessment of problems and challenges in the teaching/learning physics. By the use of purposive sampling, 184 senior secondary school year two (SSS 11) out of a population of 394 senior secondary school year two physics students from four co-educational senior secondary schools in Umuahia North LGA of Umuahia Education Zone of Abia State, Nigeria were used. The instrument for data collection was the researchers developed 25 items structured questionnaire of the Likert type of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD) on senior secondary school students’ assessment of problems and challenges in the teaching/learning physics. Two research questions and one null hypothesis tested at 0.05 levels guided the study. The instrument was validated by experts in Physics education and a reliability index of 0.96 was obtained. The research questions were answered using mean while the hypothesis was tested with chi-square statistics. Results showed that inadequate laboratory facilities, inadequate equipments, teachers’ lack of competency in the subject, poor students’ background in mathematical skills, students’ poor ability to think and pose questions, students lack of interest and motivation to learn physic, abstract nature of the subject and the quantitative nature of physics, poor teaching methods used by physics teachers, lack of encouragement from parents, negative attitudes of students towards physics are problems encountered in the teaching/learning of physics. Recommendations were made to include the provision of quality laboratories that should be furnished with appropriate and adequate equipments to enable students carry out practical activities in the laboratories, employment of competent teachers to teach the subject, drilling students on mathematical skills, motivating students by making physics interesting and organizing seminars and conferences for in-service physics teachers.
Instilling lifelong learning skills through game based learning for Indigenous students

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Abstract

It is widely agreed that the Aboriginal society and the non-Aboriginal society have two worldviews, leading to different learning strengths and weaknesses. Although there is no single evident learning style, there are some recurrent learning styles more commonly demonstrated by Aboriginal students. Findings from the Aboriginal Ways of Learning Project [2] identified that some of the recurrent learning styles include visual learning, concrete learning within specific contexts and learning through trial and feedback.

This game-based learning model aims at motivating our students to use their learning style by providing a “culturally appropriate” learning resource that is designed to suit the more visual in a situated context of relevance to them in their everyday lives [1]. By playing the game, students are allowed chances to apply their knowledge, get a response quickly, learned from the feedback before progressing along their decision-making process. In this project, students will aim at understanding more about budgeting for a car and choosing the relevant motor insurance which are covered in the Finance component of the Introduction to Mathematics unit. This game-based learning resource will be embedded into our Blackboard© learning management system for use across different devices, locations and courses. Statistics have shown that only 40% of Indigenous people graduated with a vocational or higher education qualification in 2008 as compared to 65% for the non-Indigenous population [3].

Within an effective game-based learning environment, we work toward a goal, choose actions and experience the consequences of these actions along the way. We make mistakes in a risk-free setting, and through experimentation, we actively learn and practice the right way to do things. This keeps us highly engaged in practicing behaviors and thought processes that we can easily transfer from the simulated environment to real life.

Such characteristics of game-based learning increases learners’ confidence and interest by setting a real purpose around learning, helping to shift away from passive teaching approaches that mainly focus on the retention of knowledge. As learners stay engaged and progress through the unit because game-based learning resources inject fun and stimulation into learning, they will likely complete their learning, therefore improve retention.

References


Impact of Effective Teachers’ Training on Delivery of Practical in School Science Teaching: Improvement of Teachers’ Skills and Students’ Attitudes

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Abstract

The current paper presents results generated from a 72 hour training program on effective delivery of practicals of secondary school multi-subjects science, undertaken by teachers from 10 independent schools in Qatar during the academic year 2015-2016.

The interactive plan is based on training groups of teachers on the effective delivery of practical activities selected from curriculum standards of subjects they teach. The training provided is applied in real time: during the week following each training session, teachers apply the same activities with their students and then subsequently reflect on these experiences. To further support teachers’ learning, trainers observed trainees in their laboratory classes two times over the academic year. During the last four training sessions, teachers presented their own action research projects on issues related to practical delivery which they selected at the start of the program. Evaluation of the impact of training was based on three elements: Teachers’ skills based on results of theory and practical tests, class observations before and after training, and comparison of students’ attitude towards science before and after their teachers’ training.

The training, in the first Phase (secondary school teachers), a group of 30 Grade 11 science teachers from a random selection of eight independent schools in Qatar (eight teachers from each of Biology, Chemistry and Physics disciplines, with an additional 8 teachers from two different schools served as a control group) over the academic year for a total of 72 hours (4 hours training session/week). For the test part of the evaluation a total of 51 teachers participated (24 trainees and 27 served as control including 6 original control group and 21 more teachers randomly selected from different schools).

A total of about 770 students taught by the trainees were surveyed before and after teachers’ training, to assess any variation in students’ attitude toward science in general, attitude towards practical science self-efficacy, value of science and teachers’ support. Using t-Test statistics significant improvement in these characteristics were observed with p-value ranges from 0.0 to 045 indicating significant improvement. Moreover, comparing students’ attitude of each trainees’ school individually with a control school of the same gender gives a highly significant difference with very low p-values (0.00-0.012) which clearly indicate a high attitude improvement of students toward science.

(Two schools were selected as control one for girls and one for boys, each selected as an average performing school based on results of three years of the school students’ performance in standard national tests).

Tested skills and knowledge of trainees were based on practical skills and comprehensive theory tests in addition to class observations based on a standard scored rubric. Written tests included questions on mastering practical activities, content knowledge, and application of knowledge, analysis and experiments’ design. The results were very impressive, the % difference between averages of trainees and control groups in all the three science subjects are 44% in Biology, 43% in Chemistry and 35% in physics. Statistical analysis using t-Test indicates a
significant difference in favor of the trainees with a p-value of 0.000 for chemistry, 0.001 for biology and 0.029 for physics. These results form a good evidence of the strong impact of training on improving teachers’ skills and making inquiry as habits of mind integrating practice with content.

Phase-2 of the program is undergoing during this academic year. 24 teachers from 12 primary and preparatory schools are enrolled in the program.

We would like to acknowledge and thank Qatar National Research Fund for supporting this research through the National Priority Research Program (award no. NPRP 07-050-5-001). We are indebted to school teachers and the principles of the participant schools.
Session 40: Curriculum, Research and Development

Title: Urban vs. Rural: Differences in Junior High Students’ Career Intentions and Perceptions
(Authors: Laura Stiles-Clarke, Katarin MacLeod)

Title: Undergraduates’ Motivation for Undertaking Postgraduate Programmes in the Midst of Economic Recession: A Focus Group Discussion
(Authors: Isaac Akinloye Oyewumi, Stephen Oluwashinaayomi Akintolure)

Title: Comparative Study of Teacher Developed and Market Developed Learning Resources in Early Childhood Education
(Authors: Muhammad Saleem Khan, Nusrat Ali)
Urban vs. Rural: Differences in Junior High Students’ Career Intentions and Perceptions

Laura Stiles-Clarke, Katarin MacLeod
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Abstract

The process of career development has been shown to be different for young people living in rural areas, as compared to those living in urban areas [1] [2]. This paper fills an important gap in the research literature by demonstrating the current need for tailored career education programs for students in rural and urban areas of Nova Scotia, Canada, especially as pertaining to ocean sciences and the marine industry. Here, we investigate data from a large study performed in Nova Scotia wherein students in grades 6-9 were asked about their career intentions and perceptions. Significant differences were noted between students living in urban and rural areas, especially regarding their readiness to begin thinking about a range of career paths. These differences can be leveraged with career education initiatives to improve career opportunities for rural students, and by extension, the local economy.

1. Introduction

Early exposure to a wide variety of career options is important for all students [3] [4]. Exploring possible careers and initiating life goals helps motivate students to persist in secondary and postsecondary education [3] [5]. However, past research has shown that growing up in a rural area, as compared to an urban area, can have effects on the development of career maturity in young people [1] [2]. Do these differences affect the career intentions and perceptions of rural and urban junior high students in Nova Scotia?

An impending boom in the marine industry in Nova Scotia has caused concern regarding the career intentions and perceptions of today’s young adolescents (ages 10-15) about the marine industry broadly, and the related skilled trades more specifically [6]. This research was part of a large study of students in grades 6-9 in the region, which yielded an in-depth picture of how youth perceive their employment prospects, and demonstrated significant differences between young people’s views in urban and rural areas.

2. Theoretical framework

Implementing career education and career literacy initiatives with children has a broad range of benefits, including encouraging persistence in high school and beyond [3] [5], providing opportunities for students to enhance their self-awareness and develop positive attitudes [3], and teaching employment skills that are valued in all industries [7]. As a result, both the students themselves and society as a whole can benefit from such programs because they help create responsible, confident, skilled members of the future workforce. In Nova Scotia in particular, there have been recent calls to broaden students’ awareness of possible paths to success, outside of attending university [8] [9].

Career awareness and development initiatives may be particularly effective for children living in rural areas. Because of the lower concentration of industries in rural areas, rural children are less likely than their urban peers to be exposed to a wide range of possible career paths at a young age. Rural youth are also less likely to attend postsecondary institutions, especially universities, following high school [10]. This may be linked to the fact that most universities are located in urban areas, while community colleges often have campuses in outlying areas. Students from small rural communities may also be more comfortable in classrooms with a low student-teacher ratio, as has been advertised by the Nova Scotia Community College [11].

Social factors also have an effect on rural children’s career intentions. A student’s choice whether to pursue, and persist in, a university education has been shown to depend, to some degree, on whether the student has one or more parents who attended university [12]. In 1995, Hektner [2] reported that in rural communities, connections to friends and family tend to be closer, which creates a greater reluctance in students to leave their home communities. Simultaneously, however, Hektner pointed out the greater need for rural youth to consider moving away from home to find work, as there are fewer employment
opportunities in rural areas by definition. Today, there is a prominent social norm of “leaving for work” in Nova Scotia [6], where many people are known to live in one province and travel to work in another. How does this affect the career intentions of young people in urban and rural areas of the province?

Many rural businesses are small businesses, certainly as compared to the larger firms located in urban areas, and therefore entrepreneurs in rural areas are often more visible and relatable than their counterparts in urban areas. This results in rural youth gaining a greater exposure to entrepreneurship, which influences their likelihood of choosing to start their own business later in life [13].

The differences between rural and urban youth, as discussed in the literature, called us to investigate whether there were differences in our data based on whether participants lived in urban or rural areas. This paper describes the differences we found.

3. Methodology and Methods

All students in Nova Scotia public junior high schools were invited to complete a seventeen-question, multiple choice, online survey, which included six opportunities for free responses. The survey was approved by the Nova Scotia Department of Education and Early Childhood Development, and then piloted and validated with a group of grade 6 students. The finalized survey was made available for two weeks in January-February 2016. Written instructions regarding survey administration were provided for teachers, and students were supervised by their teachers while they completed the survey during class time. Over 40% of eligible students, or 14,496 individuals, responded to the survey.

A mixed-methods approach was employed for this research, including a cross-sectional, descriptive, nonexperimental quantitative portion [14], and a basic qualitative analysis portion [15]. Two researchers separately and simultaneously calculated descriptive statistics with the quantitative data, and then conducted open and axial coding of the qualitative data. One researcher randomly selected 500 responses for each free-response question and coded them, and the other researcher randomly selected 100 different open-text responses for comparison. Inter-researcher reliability of the qualitative data analysis was high at (95 ± 2)%. The full data set’s demographics were checked for response bias, but it was found to be consistent with the general population of grades 6-9 in the province in terms of gender, school board, and grade.

To compare urban responses to rural ones, one urban and two rural school boards were selected based on the board’s overall profile as a rural or an urban area. Boards with more mixed populations were not selected. 6266 students in the urban board participated, and 1167 and 811 students participated in the two selected rural boards, for a total of 1978 rural students, and 8244 participants overall. Statistical significance for the results was set at 3%, which corresponded to two standard deviations. Uncertainty bars on the graphs in this article represent one standard deviation above and below the measured values.

4. Results and Discussion

One question in the study survey asked whether the students had parents or guardians who had attended postsecondary education. The responses supported earlier work that indicated that people in rural areas do so less frequently than those in urban areas [10]. As shown in Figure 1, eleven percent fewer rural students believed their parents or guardians had at least some postsecondary education.

4.1 Did any of your parents or guardians attend university or college?

One question in the study survey asked whether the parents or guardians of respondents attended university or college. Figure 1 shows the percentage of respondents from urban and rural areas who reported that at least one parent or guardian attended university or college. The graph indicates a higher percentage of urban students compared to rural students who have parents or guardians with university or college degrees.

This links to previous research that has demonstrated the influence of a parent’s postsecondary education on children [12]. Indeed, in this study, 16% fewer rural students than their urban peers indicated interest in pursuing university education after high school (See Figure 2). Rural participants in this study were less likely than their urban counterparts to see university as the default option, as expected from earlier research [10]. They were also more likely to consider attending community college, getting a job, or starting a business, or to not know yet what they will do. If rural students are more open-minded about different options such as attending community college or getting a job, rather than choosing to attend university as the default option, this creates an opportunity for broader career education in rural areas. Students in rural areas indicated, in their responses to this question, that they are prepared to explore more options than their urban addition, rural students differed from urban students in that they planned more often to stay in Nova Scotia following high school. Furthermore, fewer rural students were undecided about this than...
After finishing high school, I would like to...

- Start my own business: 2/5 (Urban), 4/8 (Rural)
- Get a job: 4/8 (Urban), 13/18 (Rural)
- Go to community college: 13/18 (Urban), 12/16 (Rural)
- Go to University: 49/65 (Urban), 4/4 (Rural)
- I don't know: 12/16 (Urban), 4/4 (Rural)
- Do something else: 4/4 (Urban), 4/4 (Rural)

**Figure 2. Occupation intentions following high school**

urban ones. When a similar question was asked again later in the survey, more rural students than urban students maintained that they wanted to stay in Nova Scotia, but 15% more students from both groups selected “I don’t know” in response to the later question. This is consistent with the province-wide data from the larger study, and demonstrates the value of opportunities for students to think about their future activities: as they considered their education and career paths more deeply, they became less certain of where they might end up living.

After finishing high school, I would like to...

- Leave NS: 31/46 (Urban), 31/46 (Rural)
- Stay in NS: 40/65 (Urban), 29/46 (Rural)
- I don't know: 23/46 (Urban), 23/46 (Rural)

**Figure 3. Location intentions following high school**

Rural students’ greater desire to remain in their home province could potentially be explained if more rural participants than urban ones thought that opportunities existed for them in Nova Scotia, but this was refuted by the responses shown in Figure 4. In fact, compared to urban students, rural students believed more often that the best jobs are out west, and less often that there are good jobs in their home province. This indicates a pessimistic belief that although they would like to remain in Nova Scotia, they will need to move away to find work. This may be influenced by their greater experiences with family and friends who leave the province for work, also shown in Figure 4. This demonstrates the emerging normalization of inter-provincial mobility in rural areas.

In the qualitative analysis of a sample of students’ open-text responses on this topic, rural students who indicated they would be leaving Nova Scotia after high school most frequently said they planned to move to Western Canada, whereas urban students who intended to leave Nova Scotia stated most often that their destinations were farther afield, in the USA, Europe, or other locations around the world. If rural students more frequently desire to stay in Nova Scotia, but do not believe that opportunities exist for them in their home province, this is another opportunity for career education, especially about the marine and ocean industries in rural areas. For students in urban areas, the educational opportunity remains important, especially if we can encourage temporary explorations of faraway places, followed by a more permanent settlement back in Nova Scotia. Offering students opportunities to explore a variety of careers that will be available to them locally in the future can benefit both the students and the regional economy.

Are you interested in a job in the marine industry?

- Yes: 12/52 (Urban), 15/46 (Rural)
- No: 35/39 (Urban), 39/39 (Rural)
- I don't know: 35/39 (Urban), 39/39 (Rural)

**Figure 4. Perceptions about “Leaving for Work”**

**Figure 5. Interest levels in the marine industry**

Rural students may particularly benefit from exposure to careers in the marine industry. Figure 5 shows that slightly more students in rural areas are interested in jobs in the marine industry compared to students in urban areas. Figure 6 illustrates that with the two exceptions of commercial fishing and marine
welding, rural students were significantly less aware of all the listed jobs in the marine industry than their urban peers. Similarly, Figure 7 shows that rural students stated more often that they were interested in a job in the skilled trades. In addition, where differences existed, rural students showed a more positive perception of the skilled trades than urban students, as shown in Figure 9. They believed that skilled trades pay well, that you need to be good at math to do them, and that their parents would be proud if.

**Figure 6. Awareness of careers in the marine industry**

urban peers. With an upcoming surge of activity in the marine sector in Nova Scotia [6], educating students about the many opportunities in this field would be valuable for all concern they got jobs in the skilled trades. They believed less frequently than urban students that problem solving is an important skill for the skilled trades.

**Figure 7. Interest in the skilled trades**

The general positive perception of the skilled trades in rural areas, as compared to urban areas, was confirmed by the qualitative analysis of a sample of the students’ open-text responses.

**Figure 8. Knowledge about money in trade**

**Figure 9. Perceptions about the skilled trades**

Our data shows some evidence that students in rural areas have given more thought to the possible paths they may take after high school, in that they are more open to postsecondary options other than university, and that they are more open to careers in the marine industry and the skilled trades. This may indicate greater pragmatism among rural students, as compared to idealism among urban participants, and/or an earlier start to rural students’ career development. Rural participants in this study have begun to think about their career paths by grades 6-9, to a greater extent than participants in urban areas.

As mentioned above, the results of this study demonstrate an opportunity for career education for students in rural areas. They are, compared to their urban peers, more interested in staying in Nova Scotia beyond high school, and more open-minded about a broader range of career paths including...
entrepreneurship, the skilled trades, and the marine industry. Rural students may, therefore, be even more responsive to career education initiatives than urban students. Providing opportunities for such career education would be valuable to all students, as it would encourage deeper career development and therefore greater success in postsecondary programs and beyond. It would also be beneficial for the regional economy, as a more highly career-educated population, with 21st-century skills, would be advantageous across a wide range of industries.

5. Conclusion

We conducted a survey of junior high school students across Nova Scotia, asking about their career intentions and perceptions. Approximately 40% of eligible students, or 14,496 individuals, participated in the study. In order to investigate the differences expected from the literature between urban and rural students, we selected one urban school board and two rural boards, and compared the participant responses between these two groups. Over 8000 student surveys were analyzed in this mixed-methods study.

Significant differences in career intentions and perceptions were demonstrated in this study between students living in rural versus urban areas. Rural students show greater openness to a wider variety of possible career paths, and greater desire to remain in Nova Scotia after high school, compared to their urban peers. Students in rural areas may therefore be an ever more receptive audience for career education programs than those in urban centres. Because career education has a wide variety of benefits, such programs would be valuable for both the students themselves and the region as a whole.

6. Acknowledgements

The authors would like to thank the students who participated in the study for providing us with their input. Dr. Sheryl Scully of the Institute for Ocean Research Enterprise for her leadership in developing and implementing the survey, and the Nova Scotia Department of Education and Early Childhood Development and the Mitacs Accelerate program for funding the internship that made the project possible.

7. References


Undergraduates’ Motivation for Undertaking Postgraduate Programmes in the Midst of Economic Recession: A Focus Group Discussion

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Abstract

Literature supports the fact, robustly, that a well-educated citizenry underpins state’s prosperity. Conversely, education suffers in states during economic crisis. Causal observation indicates a preponderance of disinterest in postgraduate studies in supposedly qualified Nigerian undergraduates. The study investigated the impact of focus group discussion as motivational strategy among undergraduates who have expressed disinterest in postgraduate education due to financial hardship imposed by national economic crisis. The study adopted a mixed method research design. Participants were twenty-three penultimate and graduating students: 9 males/39.14% and 14 females/60.86%. A self-developed 13-item validated questionnaire with Cronbach Alpha = 0.89 was the instrument for data collection. Independent samples t-Test returned a t-obtained of 5.197, df = 21, which is significant at the 0.01 level (or P< 0.01). It was therefore concluded that the treatment elicited positive behavioural change with respect to the preparedness to pursue a postgraduate programme during economic recession. The study is significant in its potential to prevent a vacuum or constraints in skilled workforce in Nigeria during and/or immediately after the economic recession being experienced. Emotional intelligence training is hereby recommended for the nation’s undergraduates.

1. Introduction

An in depth research conducted by Jasonoff [1], submits that most of the time, we learn about potential damages such as who is at risk and the degree of risk only after risks manifests into a disaster. But the threat, fear, and real occurrence of economic recession can be disastrous at specific and sometimes general pedestal. In this light, [2] aver “recession is related to lower levels of optimism. Accordingly, millennials, for example, lower their expectations regarding work-life balance and the social atmosphere during times of recession. Meanwhile, the impact of depression or recession provides opportunities to review and reconfigure organisations. During or after times of crisis, innovation is often at its peak. The First and Second World Wars, and the Depression were all triggers for new movements in art and music as well as employment patterns, medical advances and technology” [3].

The theory of reasoned action (TRA) [4] is one of the three classic models of persuasion, and is also used in communication discourse as a theory of understanding persuasive messages. The theory aims to explain the relationship between attitudes and behaviour within human action. TRA is used to predict how individuals will behave based on their pre-existing attitudes and behavioural intentions. An individual’s decision to engage in a particular behaviour is based on the outcomes the individual expects will come as a result of performing the behaviour [5].

Wendler et.al,[6] report that during the 20th century, United States graduate education rose to the top of the international education enterprise. Despite the loss of manufacturing jobs to lower-cost producers overseas, a high level of technical skills and a capacity for innovation, fuelled by the graduate education system, allowed the United States to remain competitive and retain an important role in global economic leadership. The United States has produced the vast majority of doctoral degrees conferred around the globe. Her graduate schools from 1997 to 2009 produced over half of the Nobel Prize winners in chemistry, physics, medicine, and economics. Graduate education in the United States also has served as a critical component for fostering international understanding. From the Fulbright Programme alone, 20 graduate scholars have gone on to become heads of state in their native countries.

The fruits of graduate education touch our lives in countless ways every day… Finding innovative solutions to many of the greatest challenges facing this nation and the world in the 21st century will depend upon having a highly skilled workforce. Tasks such as finding efficient alternative energy sources, improving agricultural practices in developing countries to feed the growing world population, and understanding other...
cultures that must coexist in the global village will require individuals with graduate-level training [7].

The National Research Council [8] asserts that “doctoral education is at the heart of the United States system of innovation. It is the process that generates highly educated scholars and researchers, significant research results, and avenues for innovation, thereby creating the leaders needed to produce the research advance that will create new careers and economic vitality for the nation”.

Doctoral education is intimately involved in the creation of scholars whose ideas will shape both future innovations..., particularly in the Science, Technology, Engineering and Mathematics (STEM) fields, and has been the envy of the world since World War II. Now, however, the United States’ position is facing substantial challenges, from a growing emphasis on doctoral education in other countries to financial constraints stemming both from the economic downturn of 2008-2009 and from the continuation of declining trends in state support for higher education [9].

History repeats itself where lessons are not learnt. Ferguson [10] suggests that there is no escape from a twenty-first century depression reminiscent of the 1930s, but now is the time to review and implement these lessons, in particular, the need for change and the anticipation of future demand.

The mind boggling question is, if stakeholders in developed nations such as the United States of America are expressing worry due to decline in number of applicants for graduate education, what should their counterparts in underdeveloped nations like Nigeria be doing? To respond to this question, the study investigated the impact of the use of Focus Group Discussion to motivate—for postgraduate education—a group of undergraduates who have expressed disinterest in this form of education due to perceived hardship imposed by national economic crisis.

2. Methodology

The study adapted the focus group method by mixing it with the use of a questionnaire in a mixed-method research design to provide insights into undergraduates’ thoughts of a shot at postgraduate education and provide a deeper understanding of the phenomenon of motivating them from a stance of indifference to being interested. Participants were twenty-three penultimate and graduating students - 9 males or 39.14% and 14 females or 60.86% conveniently sampled from the two programmes compared. Their ages ranged between 22-26 years. The criteria for selecting them were minimum Cumulative Grade Point Average (CGPA) of 3.5 and (their) expressed disinterest in the pursuit of postgraduate studies as well as proof of being from a working/middle class socio-economic background at the time of the study. Two groups of eleven and twelve participants were investigated as Treatment and Control Groups, respectively. Human Kinetics, Sports and Health Education (HKSHE) students were the Treatment Group and were taken through the focus group discussion while the Science and Technology Education (STE) students were the Control Group and were organized to interact with the School Counsellor in a placebo-group counselling session. The session lasted two (2) hours with the lead author serving as the facilitator. The first hour and a half was devoted to the interaction. The next fifteen minutes for participants’ response to the questionnaire, and the last fifteen minutes for follow-up interaction and network building.

The instrument was a self-developed but validated, 13-item questionnaire with Cronbach Alpha = 0.89. It was also open-closed ended with a four-point Likert response format whose corresponding weights are: (i) definitely will – 4, (ii) might try – 3, (iii) not sure – 2, and (iv) will not – 1. The question items were the guides for the focus group interaction which was later served on the participants for ease of data collation and processing.

3. Data Presentation and Analysis.

The Independent-samples t-test was used to compare the mean scores of the groups (treatment and control) conditions in view of reported motivation to run a postgraduate programme during an economic recession.

Table 1: Motivation for postgraduate programme in an economic recession

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td>2.0833</td>
<td>12</td>
<td>.34783</td>
<td>.121</td>
</tr>
<tr>
<td>Treatment group</td>
<td>3.0556</td>
<td>11</td>
<td>.53739</td>
<td>.289</td>
</tr>
<tr>
<td>Total</td>
<td>2.5483</td>
<td>23</td>
<td>.66209</td>
<td>.438</td>
</tr>
</tbody>
</table>

From the descriptive statistic in table-1 above, it could be observed that the total number of the participants in the Control Group are 12 while that of the Treatment Group are 11 participants. Standard deviation in motivation for postgraduate programme in economic recession for the Control Group is approximately 0.35; for Treatment Group is approximately 0.54. This corresponds to a variance of 0.121 and 0.289 for Control and Treatment group respectively.

Table 2: Group Statistics

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivati</td>
<td>1</td>
<td>3.0556</td>
<td>.53739</td>
<td>.16203</td>
</tr>
</tbody>
</table>
Table 2: Summary of Independent Samples t-Test

<table>
<thead>
<tr>
<th>group</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.0556</td>
<td>2.0833</td>
</tr>
<tr>
<td>T</td>
<td>5.197</td>
<td>2.0833</td>
</tr>
<tr>
<td>P</td>
<td>P&lt;0.000</td>
<td>P&lt;0.000</td>
</tr>
</tbody>
</table>

4. Results Interpretation:

Group Statistics in table 2 above, provides basic information about the group comparisons, including the sample size (N), mean, standard deviation, and standard error for motivation to run postgraduate programme by the group. The mean motivation to run a postgraduate programme for the Treatment Group is approximately 3.06 (almost close to 4 representing “definitely will” on the measuring scale), and the mean for the Control Group is approximately 2.08 (around 2, indicating “not sure” on the measuring scale). The implication of this result is that majority of the participants from the Treatment Group responded between “they might” and “will” run a postgraduate programme in an economic recession, while majority of the participants from the Control Group responded between “not sure” and “will not” run a postgraduate programme.

Table 3 depicting the t-test for equality of means provides us with the results for actual independent Samples t-test with t-obtained, degrees of freedom (df), the two tailed level of significance (Sig.), and the mean difference (Treatment group mean minus Control group mean). In the result, we could see that there is a t-obtained of 5.197 and, with 21 degrees of freedom (df = n – 2), which is significant at 0.01 level of significance (p = 0.000 < 0.01). Thus, we can conclude that treatment and control groups are significantly different with respect to the opinion that they will run a postgraduate programme in an economic recession. More specifically, by examining the group means (Treatment Group = 3.0556 and Control Group = 2.0833) and the mean difference (Treatment Group mean - Control group mean), we can see that Treatment Group has an average mean value of 0.97226 higher than the Control Group. That is, the positive value of the mean difference indicates that the mean of Treatment group is significantly (p<0.001) greater than the mean for the Control Group. This implies that the difference in means is statistically significant at the .1, .05. and .01 levels. We therefore failed to accept the null hypothesis (H0) which states that there is no significant difference between the means of the two groups. We therefore accept the alternate hypothesis (H1) which states that there is a significant difference between the means of the two groups.

Also, the result provides us with confidence intervals for the difference between the group means. This interval allows us to estimate the actual difference found in the population between the groups. In the result, we can be 95% confident that actual difference in motivation for postgraduate programme found between the Treatment Group and the Control Group in the study is somewhere between 0.58318 and 1.36135. This implies that the result is significant at the chosen significant level of 95%.

5. Discussion

Finding of the study that well informed people will be willing to strive and obtain higher degrees even at times of economic crisis tallies with Bloom, Canning, and Chan[11] discovery to the effect that “knowledge-based competition within a globalizing economy is prompting a fresh consideration of the role of higher education in development and growth. Previously it was often viewed as an expensive and inefficient public service that largely benefited the wealthy and privileged. Now it is understood to make a necessary contribution, in concert with other factors, to the success of national efforts to boost productivity, competitiveness and economic growth. Viewed from this perspective, higher education ceases to contend with primary and secondary education for policy attention. Instead, it becomes an essential complement to educational efforts at other levels as well as to national initiatives to boost innovation and performance across economic sectors”.

6. Recommendations

Based on the finding of this study, it is expedient to suggest that stakeholders in Nigeria’s higher education need to focus the limited resources during this rare times of recession on meeting educational needs of suitably qualified top-flyer students for postgraduate pursuits to dissuade probable vacuum in high skilled manpower needs of the nation in the immediate and nearest future, failure of which carry high detrimental effects on a number of fronts. The study should be expanded as wide as Universities throughout the nation.
7. References


[5] Rogers Gillmore, Mary; Archibald, Matthew; Morrison, Diane; Wilsdon, Anthony; Wells, Elizabeth; Hoppe, Marilyn; Nahom, Deborah; Murowchick, Elise (November 2002). "Teen Sexual Behavior: Applicability of the Theory of Reasoned Action". Journal of Marriage and Family (Volume 64)


Comparative Study of Teacher Developed and Market Developed Learning Resources in Early Childhood Education

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Abstract

The study was based on the importance of teacher and teaching methodologies which are gradually reducing with term corporate prepared learning resources and the so called technological advancement in education. This attitude can be observed at Early Childhood Education specifically where just to increase the access of education a lot of prepared and developed learning resources have been implemented at a mega level to facilitate learning, but in its true essence, the material cannot meet the indigenous requirement of learning. The main Purpose of Study was to assess the ECE teacher to make use of their own developed teaching and learning materiel and using available indigenous material rather than buying costly and commercial material. The basic tool of data collection was a close-ended questionnaire, developed on a Lickert Scale ranking system and Interview method was also used a purposive sample of 20 schools from the public and private schools of Karachi were selected. And the data was collected from 10 teachers of each school. The central tendency measures were applied to analyzing the data to find out the facts. The findings led to the conclusion that in order to develop ECE teacher’s capacity in terms of resource development campaign. It will also serve very important role rather than wasting resources on large scale buying from market. There is dire need to work with teachers for developing these skills so that teachers can start taking responsibilities and initiative of the development of resources for the planning their teaching. The study strongly recommends the capacity development of working ECE teachers in the field.
Session 41: Learning / Teaching Methodologies and Assessment

Title: Examining the Effect of Bilingualism and Mono-Lingualism Factors on Studying Approaches of Bilingual and Monolingual Students (Male And Female) in Islamic Azad University of Tabriz Branch (Author: Nazila Seyedkhorasani)

Title: Ideas for Improving Mathematics Education Based on Comparisons among Different Countries' Mathematics Teaching Practices (Author: Xiaoyu Wang)

Title: Socio-Cultural Factors Impacting Disabling Addictive Behaviors in Work-Aged Populations (Authors: Gabriela Walker, Bernard W. M. Wone)
Examining the Effect of Bilingualism and Mono-Lingualism Factors on Studying Approaches of Bilingual and Monolingual Students (Male And Female) in Islamic Azad University of Tabriz Branch

Nazila Seyedkhorasani
Islamic Azad University

Abstract

Bilingualism is a phenomenon that is pervasive and complicated and in most cases, problematic, understanding and recognizing the difficulties resulted from which needs scientific research. Especially bilingualism at home and school leads to some problems in the field of education among which academic failure and equality of the educational opportunities for all the children.

Studying approaches: one of the criteria of educational system efficiency is the students’ academic achievement and failure and discovering and studying the variables effecting on these variables leads to better understanding and predicating the factors influencing at schools. Therefore examining the variables related to academic achievement in several courses is one of the main research issues in the educational system (Farahani, 1994).

1. Introduction

In the past, most of the researchers have studies the relationship between cognitive – motivational procedures with academic performance, separately, but today, most of the psychologist consider both cognitive and motivational components and their roles in learning and based on new theories like self-regulation learning, cognitive, motivational components and academic performance, consider it as an inter-related set.

Regarding the relationship between learning approaches and academic achievement, Antoystel & Damsden reported negative correlation between surface approach and academic achievement [4].

Mohammadzade has compared four memory criteria in his dissertation (initial learning, maintenance, recognition and reinstruction) in two groups of Persian speaking and Zoroastrian and came to this conclusion that regarding the studied variables, there is no difference between two language groups. It should be said that the number of people under study in each group was 15 and one of the groups was of Persian speaking school and the other group was of Zoroastrian school.

Aarefi has studied and compared the ability to comprehend readings and vocabulary meanings in both subject groups of Azeri and Armanian speaking. The findings showed relative superiority of Armenian children, but there should be conducted more accurate research to confirm or reject the above conclusion.

Moreover, it is not clear that why the researcher thought about the comparison of language academic in Azeri speaking individuals to the Armenian. While the effect of bilingualism should be compared through the lingual performance or academic performance of Azeri or Armenian people with one monolingual group (Persian speaking).

The research by Mohyeddin under the title of the parents’ being Turkish speaking and its effect on children's learning how to read and write was relatively of more accuracy.

In this dissertation, two tests of comprehending the vocabulary meanings, have been given to 60 students from Turkish speaking families and 60 students of Persian speaking families. The finding showed that there is no difference between these two groups regarding comprehension of vocabulary meanings. After conclusion, the researcher presents some recommendations to improve Persian education in the areas of Turkish which have no relation to the research findings.

The researches show that bilingualism has positive effect on cognitive development. Those children who are fluent in two languages, have better performance than the others in selective attention, analytic reasoning of the words, concept formation, and cognitive inflexibility. Besides, bilingual children are more improved in terms of inflection on language. They are more informed that the words are optional symbols, they are much more knowledgeable about the language structure and details, and better recognize grammatical and semantic errors in oral and written sentences, those abilities that improve their improvement in reading. Language and memory skills have close relation with each other. In comprehending language (perception of oral or written sentence), we remember unconsciously what we have heard or read.

Vygotsky distinguishes three stages: social speech (which role is to control the others), egocentric and internal speech (internal speech orients to human behavior). In Vygotsky's theory, language is a means
to social interaction and also thought and self-regulation (i.e. the ability to think and solve problems without others’ help). Generally, self-regulation refers to cognitive procedures (thought, memory). He considers language very important for higher mind performances.

Multilingual students are expert in learning languages. Studies have shown that bilinguals have more facilities in learning third language, because they have more flexibility in using learning strategies, more research on mono- and bilingual strategies are limited.

Oxford and Arman found that compensation strategy was the most popular one among 520 adult learners and the second strategy used by bilingual students in learning French and Japanese in Singapore.

Caldor and Witchraten, in their comparative examination of Open University in Hong Kong and Open University in Serilanka, have identified two common factor in both groups. The first factor, deep-strategic approach related to items like semantic seeking, using evidence and logic, idea relation, organization and management of studying and comprehend and perception. The second factor presents the middle approach including the scales related to memorization, difficulty in seeing any general picture and worries about failure in their studies. These findings form an interesting comparison with factorial structure identified by Smith et al in Chinese students that involved a subset of Hong Kong students. Firstly, Smith et al have identified four factors similar to two factors recognized by Caldo and Witchraten and secondly the same observations was done in both research base on this fact that ASI is a strong instrument to be used in several cultural groups. Here, it should be mentioned that Caldo and Witchraten used short ASI, while Smith et al applied longer 64 item ASI.

2. Methodology

In order to examine studying approaches in university students, the first group of data has been collected using Lankster’s studying approaches questionnaire that is applied to determine cognitive strategies and motivational states which was based on Biggs, Marton, Pask developed by Entwistle et al in Lancaster university in Britain.

Lankster’s studying approaches questionnaire includes 64 items in Likert scale, completely agreed, with the score 5, and completely disagreed, with the score 0. This questionnaire includes a number of general items including sex, age, level of education, faculty and field of study.

Semantic orientation has some subscales like "deep approaches, idea relation, use of evidences, internal motivation", expression orientation has the following subscales "surface approach, curriculum based approach, fear of failure or deferral, learning without futurism ", strategic orientation has these subscales including "achievement motivation, external motivation, strategy approach", styles and harms has the following subscales: "irregular methods, negative trends, learning with distractions, operation learning, learning with comprehension”.

3. Reliability

Cronbach alpha for all the subscales and 4 main scales of the questionnaire has been used. Questionable items that had negative and zero correlation with the related scale were deleted in the statistical analysis to improve Cronbach alpha. These items included items numbered: 50-30-49-3-40-46-57-32-11-27. In previous studies, estimation of reliability for this questionnaire was satisfactory, but some subscales showed lower reliability.

4. Statistical population and sample

The statistical population of the present research included 25630 students of the Islamic Azad University, Tabriz branch who were studying in three fields of study (humanities, medicine, mechanic). And by having a glance on Morgan table, it is predicted that the sample volume of the research is 390-440.

To analyze data, two types of analysis is used: questionnaire using present interview to the sample of 25630 students of the Islamic Azad University, Tabriz branch who were selected through randomized sampling. So, the needed information is collected, then using computerized statistical programs, the obtained data has been analyzed and each variable was recorded in frequency table with descriptive statistics including mode, mean, median, and standard deviation. The relationships among the variables (as analytic and inferential) have been used.

4.1. The method of data analysis

In order to analyze data, SPSS software has been used.

a) Descriptive analysis
b) Inferential statistical analysis

Tables of frequency, diagrams and descriptive statistics are recorded. Inferential statistical analysis was used to answer the research questions and test questions. The relationship between relative error and the error of mean estimation in the level of confidence of 95% was the point of data analysis. Test of mean difference was used to compare independent groups mean and another test of mean
difference were used to test level of significance of coefficients of correlation.

Table 1. Table of distribution of variability of the variables in the individuals under the study

<table>
<thead>
<tr>
<th>Variable</th>
<th>mean</th>
<th>Low</th>
<th>High</th>
<th>SD</th>
<th>Mean</th>
<th>minimum</th>
<th>maximum</th>
<th>skewness</th>
<th>kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>semantic orientation</td>
<td>45.84</td>
<td>40.22</td>
<td>-11.46</td>
<td>6.64</td>
<td>13</td>
<td>56</td>
<td>0.426</td>
<td>0.215</td>
<td></td>
</tr>
<tr>
<td>expression orientation</td>
<td>40.32</td>
<td>39.83</td>
<td>-11.23</td>
<td>7.04</td>
<td>13</td>
<td>45</td>
<td>0.203</td>
<td>0.209</td>
<td></td>
</tr>
<tr>
<td>strategic orientation</td>
<td>31.01</td>
<td>32.48</td>
<td>13.16</td>
<td>1.83</td>
<td>11</td>
<td>48</td>
<td>0.266</td>
<td>0.268</td>
<td></td>
</tr>
<tr>
<td>styles and forms</td>
<td>44.30</td>
<td>46.62</td>
<td>-3.15</td>
<td>3.79</td>
<td>28</td>
<td>80</td>
<td>-0.207</td>
<td>-0.018</td>
<td></td>
</tr>
<tr>
<td>irregular methods</td>
<td>1.45</td>
<td>1.45</td>
<td>5.6</td>
<td>3.25</td>
<td>0</td>
<td>16</td>
<td>0.501</td>
<td>-0.193</td>
<td></td>
</tr>
<tr>
<td>negative trends</td>
<td>4.00</td>
<td>3.06</td>
<td>8.99</td>
<td>3.20</td>
<td>0</td>
<td>10</td>
<td>-0.288</td>
<td>-0.212</td>
<td></td>
</tr>
<tr>
<td>learning with comprehension</td>
<td>11.06</td>
<td>9.84</td>
<td>30.20</td>
<td>2.42</td>
<td>2</td>
<td>16</td>
<td>0.000</td>
<td>0.174</td>
<td></td>
</tr>
<tr>
<td>internal motivation</td>
<td>11.28</td>
<td>11.02</td>
<td>11.54</td>
<td>2.08</td>
<td>0</td>
<td>16</td>
<td>-0.694</td>
<td>0.498</td>
<td></td>
</tr>
<tr>
<td>external motivation</td>
<td>3.53</td>
<td>3.29</td>
<td>8.96</td>
<td>2.53</td>
<td>0</td>
<td>10</td>
<td>-0.158</td>
<td>-0.793</td>
<td></td>
</tr>
<tr>
<td>strategy</td>
<td>11.54</td>
<td>11.30</td>
<td>11.78</td>
<td>2.54</td>
<td>0</td>
<td>16</td>
<td>-0.096</td>
<td>1.015</td>
<td></td>
</tr>
</tbody>
</table>

5. Testing research questions and data analysis

In this section, it has been dealt with analysis of the variables. To compare the rate of semantic orientation, expression orientation, strategy approach, strategy approach, irregular methods, negative trends, learning with comprehension, internal motivation, external motivation, strategy approach among bilingual and monolingual people, because the main variables in distance level and ground variables are in the level of nominal are of two states, so independent t-test has been used.

5.1. Inferential statistical analysis

In the section of inferential statistical analysis, it has been dealt with dimensions of studying approaches of the groups.

Based on the above table, it is seen that mean semantic orientation in mono-lingual people is 6.2353 .6141 and mean semantic orientation in bilingual people is 6.8616 40.51. So, as these value have been obtained t= 1.463, p= 0.144, it is indicated non-significance of semantic orientation in the studied people and semantic orientation in bilinguals and mono-linguals are equal.

First question: Is semantic orientation different between bilingual and mono-lingual students?

Table 3. Table of semantic orientation

<table>
<thead>
<tr>
<th>group</th>
<th>No.</th>
<th>mean</th>
<th>SD</th>
<th>t-statistic</th>
<th>df</th>
<th>Significance in the level of 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-lingual</td>
<td>107</td>
<td>41.61</td>
<td>6.255</td>
<td>-1.463</td>
<td>82</td>
<td>0.144</td>
</tr>
<tr>
<td>bilingual</td>
<td>316</td>
<td>40.31</td>
<td>6.865</td>
<td>-1.514</td>
<td>399.65</td>
<td>0.127</td>
</tr>
</tbody>
</table>

Q2: Is expression orientation different between bilingual and mono-lingual students?

Table 3. Table of Expression Orientation

<table>
<thead>
<tr>
<th>group</th>
<th>No.</th>
<th>mean</th>
<th>SD</th>
<th>t-statistic</th>
<th>df</th>
<th>Significance in the level of 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-lingual</td>
<td>106</td>
<td>14.02</td>
<td>6.440</td>
<td>-1.741</td>
<td>420</td>
<td>0.082</td>
</tr>
<tr>
<td>bilingual</td>
<td>316</td>
<td>11.92</td>
<td>7.992</td>
<td>-1.431</td>
<td>137.501</td>
<td>0.155</td>
</tr>
</tbody>
</table>

Based on the above table, it is seen that mean expression orientation in mono-lingual people is 12.046 41.12 and mean expression orientation in bilingual people is 6.8616 40.51. So, as these value have been obtained t= 1.741, p= 0.082, it is indicated non-significance of expression orientation in the studied people and expression orientation in bilinguals and mono-linguals are equal.

Q3: Is strategy orientation different between bilingual and mono-lingual students?

Table 3. Table of Strategy Orientation

<table>
<thead>
<tr>
<th>group</th>
<th>No.</th>
<th>mean</th>
<th>SD</th>
<th>t-statistic</th>
<th>df</th>
<th>Significance in the level of 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-lingual</td>
<td>107</td>
<td>33.35</td>
<td>5.218</td>
<td>-0.817</td>
<td>431</td>
<td>0.414</td>
</tr>
<tr>
<td>bilingual</td>
<td>314</td>
<td>32.80</td>
<td>6.200</td>
<td>-0.89</td>
<td>215.726</td>
<td>0.355</td>
</tr>
</tbody>
</table>

Based on the above table, it is seen that mean strategy orientation in mono-lingual people is 33.35 5.218 and mean strategy orientation in bilingual people is 32.80±7.992. So, as these value have been obtained t= 0.817, p= 0.414, it is indicated non-significance of strategy orientation in the studied people and strategy orientation in bilinguals and mono-linguals are equal.
Q4: Is styles and harms different between bilingual and mono-lingual students?

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T Statistic</th>
<th>df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styles</td>
<td>107</td>
<td>44.34</td>
<td>5.09</td>
<td>0.451</td>
<td>421</td>
<td>0.652</td>
</tr>
<tr>
<td>Harms</td>
<td>116</td>
<td>44.65</td>
<td>6.04</td>
<td>0.490</td>
<td>214.738</td>
<td>0.624</td>
</tr>
</tbody>
</table>

Based on the above table, it is seen that mean styles and harms in mono-lingual people is 44.34±5.098 and mean styles and harms in bilingual people is 7.992 44.63. So, as these value have been obtained t= 0.451, p= 0.652, it is indicated non-significance of styles and harms in the studied people and styles and harms in bilinguals and mono-linguals are equal.

6. Conclusion and discussion

The first question was that is semantic orientation different between bilingual and mono-lingual students? That according to the obtained data, it is not significant. Therefore, it could be concluded that there is no difference in semantic orientation between bilingual and mono-lingual students. This finding is inconsistent with the examination of Lankster studying approaches carried out by Ramsden. So, in the explanation of this, it could be said that there is no difference regarding what they study between bilingual and mono-lingual students and they do not achieve to the same comprehension of what they study and this is not different between bilingual and mono-lingual students.

The second question: is expression orientation different between bilingual and mono-lingual students? is not significant. Therefore, it could be concluded that there is no difference in expression orientation between bilingual and mono-lingual students that is inconsistent with the findings of Ramsden, John-Te, Richardson. That is in reproducing what they have studied, these bilingual and mono-lingual students show no difference and this component is similar between these two groups and language has no effect in reproduction of studying.

Third question: Is strategy orientation different between bilingual and mono-lingual students? That significance of this question is rejected and there is no difference in strategy orientation between bilingual and mono-lingual students Therefore, the results are inconsistent with Ramsden and it could be explained that none of bilingual and mono-lingual students consider studying as a way to achieve qualification needed for employment that should win ii as a game and this roots in beliefs, trends, social and cultural values of university student class that have negative impact on continuation of study and hope to employment and job creativity.

Fourth question: is styles and harms different between bilingual and mono-lingual students? Which non-significance has been confirmed in the present study and there is no difference in styles and harms between bilingual and mono-lingual students. In the explanation of this, it could be said that both bilingual and mono-lingual students pay less attention to academic needs (caring out projects, be on time and have continuous presence in the university, be present in the library, etc.) and therefore they experience the problems resulted from not studying correctly that could be related to their poor and low educational efficiency and achievement.

7. Acknowledgements

Fattahi compared academic achievement mono- and bilingual students of elementary grade in those lessons that are directly under the influenced of language factor (Persian language and dictation) along with control variable of intelligence and has found that bilingual students are in lower grade than mono-lingual subjects regarding Persian language and dictation lessons in first and third grades. For dictation lesson in first and third grades and for mean two lessons (Persian language and dictation), there was also most difference in the first grade. The portion of language factor in making difference in the mentioned performances was so higher than the reciprocal effect of language in the academic grade and this shows the importance of language factor on bilingual students’ academic achievement.

Also, Volet etal found that Asian students showed significantly higher scores for superficial approaches and showed non-significantly lower scores for deep approaches than local students.

In another study, students filled studying approaches (ASI) Australian and Chines students (from Malaysia, Singapore, Hong Kong) in two universities in Australia.

Smith et al recognized a four factor structure that the most important factors in explaining learning behaviors of Chinese students was a factor that recognized it as superficial – fascinated orientation in two groups of students for learning by distinct methods. Though there were some similarities among factors in each groups, but for both groups one factor existed for using superficial learning approach.

In another research by Bhoomiah, Chines-Hong Kong students had higher mean for deep study approach and lower mean for superficial learning approach. On the other hand, Lankster studying
approaches questionnaire was conducted on a sample of 794 Japanese student to compare their answers with British students. Besides, different gender role of Japanese and women were also considered.

8. References


Ideas for Improving Mathematics Education Based on Comparisons among Different Countries’ Mathematics Teaching Practices

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Abstract

Educational philosophy and educational practices are two key factors in mathematics education. Although, educators share similar views with regards to mathematics educational philosophy, there are many differences in the mathematical educational practices among different countries. The author explores the many variables influencing some of the world’s diverse educational practices within the context of mathematics education to include culture, economics, philosophy, textbooks, evaluation and assessment, etc.

Based on mathematics education research, mathematics teaching practices and experience both in China and U.S.A., the author builds a mathematics teaching model to compare the mathematics teaching practices among different countries and presents ideas and suggestions for improving mathematics education.
Socio-Cultural Factors Impacting Disabling Addictive Behaviors in Work-Aged Populations

Gabriela Walker, Bernard W. M. Wone
University of South Dakota, United States

Abstract

This study explores statistically the possible socio-cultural factors impacting addictive behaviors leading to disability in work-aged populations. A sparse canonical correlation analysis was employed to explore factors that may impact work place by being correlated with high addictive behaviors related to drug, tobacco, alcohol, and food over-consumption in working populations (15 to 49 year olds). The results revealed that both within the socio-cultural and the health/addictive factors there is a great degree of homogeneity, with less developed countries exhibiting lower addictive behaviors (such as food consumption for males and females, tobacco use for females, drug use for females) as the culture of these countries exhibited less information flow, social globalization, personal contact, cultural proximity, but more gender inequality. These results suggest that the development of a country influence addictive behaviors, and may lead to increased disability due to these addictions.

1. Introduction

One of the main tenets of the World Health Organization (WHO) is everyone’s right to the highest possible status of health. Gostin, Friedman, Buss, et al. [3] built the argument that if the next WHO Director General will focus on this structural value, “ensuring the universal right to health” by creating a Framework Convention on Global Health, then subsequent health-related issues can also find a faster and easier solution. The present study pertains to understanding influences of different factors on Years of life Lost due to specific Disability (YLD) and Disability-Adjusted Life Year (DALY), a measure of overall disease burden, caused by behaviors related to alcohol, drug, tobacco, and food consumption in during the work-intensive period of one’s life (15 to 49 old). From the entangled process of globalization, the socio-cultural factors are considered herein, holding political choices and economic factors as ceteris paribus considering.

however, the Gross Domestic Product to provide a measure of the social theoretical concept: the ‘culture of poverty’.

A research study of this magnitude alleges to be exploratory in nature, and much less confirmatory of hypotheses of impact power. The over-arching umbrella of ‘socio-cultural factors’ a nation or people exhibit cannot be completely captured in standardized indices, and can certainly provide only a static and temporal slice of the state of the nation at the moment in time when the data were collected. However, because global research in different fields is much more advanced today, then, say, 50 or 100 years ago, allowing for different indices to be computed, weighted, and tested for robustness; because of increasing adherence to international organizations and forums which require data-reporting; because of more powerful statistical methodologies and software that can handle multiple-layered global data; because of a raise in transparency of government and international mechanisms; because of an increase advocacy for social justice, equity, etc.; and despite the temporality and partiality in a continuously-moving scene of the data, and, hence, of the results, the study question does not become less interesting or less important, especially that is has not been asked, nor answered, before.

2. Method

For the sake of comprehensiveness and, concomitantly, parsimony, the authors of this study narrowed down the socio-cultural environment to 18 factors related to societies and individual general well-being. The Human Development Index (HDI) is used as a categorical mediator to facilitate in data analysis.

2.1. Independent (Explanatory) variables.

Eighteen explanatory variables were considered for this exploratory study to illustrate the social and
cultural contexts in which people aged 15 to 49 live and work under.
(a) KOF Globalization Index [6], with the following indices and sub-indices (according to the Definitions and Sources document):
(1) Social Globalization Index (sg) as a general measure of the following variables:
(2) Personal Contact Sub-Index (pv), including telephone traffic; transfers of goods, services, income, or financial items as percent of GDP; international tourism; foreign population; and international letters.
(3) Information Flow Sub-Index (ifs), including internet users, television, and trade in newspapers.
(4) Cultural Proximity Sub-Index (cp), including number of McDonald’s restaurants, IKEA stores, and trade in books.
(b) (5) Adult Literacy Rate, population 15+, both sexes, extracted from Data World Bank.
(c) (6) Life Expectancy at Birth (LEB)
(d) Education level [2]:
(7) Average school attendance for females, per country – country school life expectancy (primary to tertiary education years) (CLEF)
(8) Average school attendance for males, per country – country school life expectancy (primary to tertiary education years) (CLEM)
(e) (9) National Happiness (Happy), reflecting a “growing global interest in using happiness and subjective well-being as primary indicators of the quality of human development” [8], coming out of the Sustainable Development Solutions Network (SDSN) and commissioned by UN Secretary-General Ban Ki-moon in 2012, and using a Gallup World Poll methodology.
(f) (10) Religious Diversity (RDI) is calculated based on the shares of eight major world religions (Buddhism, Christianity, folk or traditional religions, Hinduism, Islam, Judaism, other religions considered as a group, and the religiously unaffiliated) [7].
(g) Geert Hofstede dimensions measuring national culture [5], defined by the Hofstede Institute as follows:
(11) Power Distance (PDI), as “the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally.”
(12) Individualism (idv), as “the degree of interdependence a society maintains among its members.”
(13) Masculinity (mas), as “what motivates people, wanting to be the best (Masculine) or liking what you do (Feminine).”
(14) Uncertainty Avoidance (uai), as “the extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these.”
(15) Long Term Orientation (ltowvs), as “how every society has to maintain some links with its own past while dealing with the challenges of the present and future.”
(16) Indulgence versus restraint (ivr), as “the extent to which people try to control their desires and impulses.”
(h) (17) Gender Inequality Index (GII) measuring the gender equity degree in each country.
(i) (18) Gross Domestic Product (GDP) per capita as a measure of poverty [9].

2.2. The dependent variables

The dependent variables on addiction have been extracted from the Global Burden of Disease health database and they fare out in DALY (Disability-Adjusted Life Year, a measure of overall disease burden) and YLD (Years Lived with the Disability due to the risk behavior of substance consumption for people living with the health condition or its consequences). Addiction has been linked to depression as a cause, but also to loss of quality of life, short- or long-term disability, and possible mortality as effects.

2.3. Analysis

A sparse canonical correlation analysis is used to identify and measure the associations among two sets of variables. Canonical correlation is used in the situations where multiple regression would be, but where are there are multiple intercorrelated outcome variables. Canonical correlation analysis determines a set of variates or components, where orthogonal linear combinations of the variables within each set that best explain the variability both within and between sets.

Figure 1. Sparse canonical correlation analysis (sCCA) reveals interesting patterns in the two data sets (response and explanatory). The first component (i.e., variate 1) differentiated the countries (represented by numbers) clearly based on their state of development (see legend) whether by (A) Social variables, or by (B) Health variables. H = highly developed, L = less
developed, M = moderately developed, O = not designated by databases, VH = very highly developed

Figure 2. Correlation plot showing which response variables (in orange) are correlated with which explanatory variables (in blue) by looking at formed clusters as defined by the first two components from the sparse canonical correlation analysis. Clustering of variables also indicate their correlations between them.

The strength of the correlation is represented by the distance from the origin (the further from the origin the better). The correlation circle plot highlights the contribution of each selected variable to each component (variate). Variable abbreviations are listed in the paper.

Sparse CCA (SCCA) minimizes the number of features used in both the primal and dual projections while maximizing the correlation between the two views [4].

3. Results

The analysis revealed interesting patterns associated with social and health factors, and the state of development in the countries. The first variate captured much of the variation in the data sets, with 40% explained variation for the social variables and 32% explained variation for the health variables (see Figure 1). The first variate selected 5 social variables (i.e., information flow, social globalization, personal contact, cultural proximity, and gender inequality), and 7 health variables (i.e., Male & Female Body Index Years Lived with Disability; Female Tobacco Years Lived with Disability & Disability-Adjusted Life Year; Male Body Index Disability-Adjusted Life Year; and Female & Male Drug Disability-Adjusted Life Year) as important factors in differentiating the developmental status of the countries. These selected variables are highly correlated (i.e., > 0.5 absolute correlation) with the variates, as well as between variable type (i.e., between the social block of variables and the health one; see Figure 2).

4. Discussion and Conclusion

The results revealed that within both the socio-cultural and the health factors there is a great degree of homogeneity, with less developed countries exhibiting lower addictive behaviors (such as food consumption for males and females, tobacco use for females, drug use for females) as the culture of these countries exhibited less of information flow, social globalization, personal contact, cultural proximity, but more gender inequality. These results suggest that the country development level correlates to addictive behaviors. When statistically assessing the effects of socio-cultural globalization, while considering the advanced degree of development of a country, these results are staggering. The results suggest that more socialization (more personal contact, information flow, and cultural proximity) in the context of wealth availability may lead to more food consumption (for both genders) and more women smoking and trying drugs. With increased globalization and development, we can see an increase in addictive behaviors that lead to disability, loss of quality of life, and, eventually, possible death (the YLD and DALY measures speak to the burden of disease and lives cut short because of the disabilities stemming as a result of these addictive behaviors). Public policy, education and health policy lobbyists, lawmakers, governmental institutions, and corporate organizations should consider these results when working for the prevention and treatment of addictive behaviors; for decreasing disability and dependability of socially-funded disability income; and increasing job productivity.

Since 2013, Berardi [1] was pointing out that “the technical transformation implied in the process of globalization is changing the socio-cultural prospects so deeply that theoretical tools inherited from European critical theory no longer suffice for imagining the future of human evolution.” If researchers would try to take another “picture” with similar sets of data, the results may look different in the context of planetary changing ideologies, technological dependencies, and pedagogical value shifts that a new generation will be subjected and reactive to.

5. References


Session 42: Higher Education

Title: Challenges for the implementation of a European PhD for Thermal Energy Storage

Title: Re-thinking academic staff transformation in South African Higher Education: Towards a Conceptual Framework
(Authors: Michael Cross, Malau David Matsepe)

Title: Those who can do and those who can’t teach
(Author: Barba Aldis Patton)
Challenges for the implementation of a European PhD for Thermal Energy Storage

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AIT Austrian Institute of Technology GmbH, Energy Department, Vienna, Austria¹
GREA Innovació Concurrent, INSPIRES Research Centre, Universitat de Lleida, Lleida, Spain²
KIC-Innoenergy, Stockholm, Sweden³
Centre DIOPMA, Universitat de Barcelona, Barcelona, Spain⁴

Abstract

Following the EC SET-Plan Education and Training Roadmap, the goal of Innovative Pathways to Thermal Energy Storage (INPATH- TES) is to create a network of academia, research institutes and small and medium-sized enterprises (SME) to implement a joint PhD programme in Thermal Energy Storage (TES). For the development of the PhD programme the presence of a wide range of stakeholders ensures the inclusion of knowledge, experiences and needs. The PhD programme with a total of fourteen basic common PhD courses, technology specialization courses and research management, dissemination and communication courses uses the possibility of competence and skills driven learning outcomes to educate future students. Through the carefully designed Intended Learning Outcomes (ILOs) and Achieved Learning Outcomes (ALOs), following the EIT pedagogical methodology, learners will receive knowledge up to the necessary specific level.

Main challenges which were identified so far consist of the development of the programme, the implementation of the programme in each country and institution due to the structure, the doctoral training and the access to a PhD programme, the development of a Master degree programme (MSc) in Thermal Energy Storage, and to ensure the continuity of the programme after EU funding ends. The final result of INPATH- TES will lead to a qualification of professionals in TES technologies for European research institutions and industry companies.

1. Introduction

The European Strategic Energy Technology Plan (SET-Plan) was established as a strategic plan for energy technology policy in Europe which comprises measures related to planning, implementation, resources and international cooperation in the field of energy technologies. Moreover, the European Commission (EC) SET-Plan Education and Training Roadmap (E&T) [1] is targeted at bringing a structural change in the European Union (EU) educational landscape by enhanced integration and coordination of the business and the research environment. The SET-Plan Roadmap Education has identified clear gaps in linking Higher Education Institutions together for more efficient PhD education, and especially to include practical training with research infrastructures and experimental facilities [1].

Based on these gaps and technological needs in the area of thermal energy storage (TES), the project Innovative Pathways for PhD research in Thermal Energy Storage (INPATH- TES) was developed and funded within the framework of the research and innovation programme Horizon 2020 by the EC.

The goal of INPATH- TES is to create a network of European partners in at least fourteen countries, consisting of thirteen universities, four research institutes, three industries and large enterprises and two small or medium-sized enterprises (SME) that are cooperating in defining and deployment to implement a PhD programme on TES technologies. The final result of such a network will lead to a qualification of professionals in these technologies for European research and industry institutions.

The specific objectives and outcomes of INPATH- TES are:
• To establish a unique PhD programme in the field of TES,
• To develop a minimum of twenty ECTS (European Credit Transfer System) equivalent common training modules,
• To develop four technology-oriented PhD courses,
• To establish one annual joint workshop for PhD students,
• To exchange twenty-eight PhD students per year, and
• To exchange fourteen PhD students per year between industries and academia.

2. Approach and methodology to establish a PhD on TES

The overall approach of INPATH- TES consists of a work plan divided in six work packages (see Figure 1), which are either coordination or support activities. The main coordination activities contain development,
maintaining and updating of the PhD programme in INPATH-TES and the implementation of the PhD programme. Main support activities are stakeholder involvement, forming further partnerships, monitoring, evaluation of INPATH-TES intellectual property rights, and regulatory framework.

For the development and implementation of the PhD programme, the presence of a wide range of relevant stakeholders ensures inclusion of knowledge, experience and needs in the project. Communication with stakeholders is on one hand important to raise awareness of the importance of INPATH-TES across the EU but also to get the approval and acceptance of the relevant stakeholder for the PhD programme. Therefore relevant stakeholder groups were defined within the consortium which included policy makers, industry, SMEs, academics, students and non-governmental organizations (NGOs). A general communication strategy was agreed and implemented which contains project branding, a website (www.inpathtes.eu), communication on a regular basis via press releases, newsletter, information materials such as brochures and videos or the organization of events and conferences.

New types of social media are also being used for communication with the general public, for example collaborative projects, blogs and microblogs (e.g. Twitter: @inpath_tes), content communities (e.g. YouTube: Story board video), and social networking sites (e.g. LinkedIn: https://ie.linkedin.com/in/inpath-tes-7bb09b110).

For the developing, maintaining and updating the PhD programme, first a benchmark on PhD level education in the field of “energy storage” was made, the findings were reconfirmed and consolidated. From that the SET-Plan E&T Roadmap [1], a curriculum that was confirmed.

The final concept of the developed PhD programme consists of fourteen courses which can be clustered in:

- basic common PhD courses, common technology specialization courses, and soft skills related courses.

Each of these courses is composed of various topics of the corresponding fields. Each topic is then composed of different lessons which can then be tailored to meet the needs of each of the PhD supervisors for their PhD candidates. The concept is built in small and easy-to-manage “lessons” that in different ways can be “packaged” in courses that the respective PhD supervisors, and their respective universities, can adapt to their own needs with approval of the PhD programme board. The developed learning material is implemented in the constructive alignment perspective with the KIC InnoEnergy pedagogical methodology of student-centred learning, aligned teaching, and active learning [2]. The methodology is implemented in an e-learning repository platform has been commissioned to host all the learning materials that will be delivered in the PhD curricula.

The approach is for the developed different lessons to be stand-alone up to a certain level. As such, through the carefully designed Intended Learning Outcomes (ILOs) and Achieved Learning Outcomes (ALOs), they will ensure that the students receive knowledge up to a specific level [3].

Therefore, it is possible for learners to reach a certain knowledge-level in a completely remote setting, whereas the learners who may want to progress even further into the learning process will have access to the additional knowledge materials at the follow-up level [4].

The online learning platform self-learning section consists of recorded learning videos, lectures and power point presentations cut into short segments for efficient learning. In order to get hands-on practice of the crucial technologies students will get access to remote lab facilities and also interactive simulations. Other materials are filmed study visits, online literatures and, external open access material. Each section is followed by tracked self-assessment where students’ performance can be followed up continuously and serve for pedagogic purpose. Randomized automatically correct calculation exercises are to be programmed so that students may
test their skills and knowledge at their convenience.

![Learning Resources](Image)

Figure 2. Example of e-learning material in the form of “lessons” [5]

All developed learning materials during the project duration period should also give the possibility of the implementation of a Master of Science (MSc) degree. Among the different types of MSc degrees that could be established, the project consortium is considering the possibility of implementing an inter-university master’s degree at a selection of participating universities.

Another crucial coordinating activity is the implementation of the PhD in the partner countries, namely Austria, Belgium, France, Germany, Ireland, Israel, Italy, Latvia, Netherlands, Poland, Portugal, Spain, Turkey, and UK as it is a key success factor for the future of the PhD programme. Mainly the different legislative barriers and the composition of a PhD programme in the partner countries were evaluated. Main differences were found in:

- The regulation and scope,
- The structure of the PhD programme,
- Potential doctoral training (mandatory or not),
- The skills to be acquired by the student,
- The access to a PhD programme,
- Admission criteria, and
- The PhD programme requirements.

### 3. Implementation of the PhD Programme

Following the EC SET-Plan E&T Roadmap, the concept of the project INPATH-TES is a unique PhD programme between universities and research centres on the topic of TES which will consist of common courses mandatory for the foundation of the students’ training.

These PhD courses strengthen PhD study through providing specialist underpinning. The global curriculum that is implemented in ECTS-awarding institutions is composed of five engineering courses, five soft-skill courses and four advanced energy storage courses that can be combined to form a PhD curricula. To ensure smooth transition of the new PhDs to the industry, common courses of 20 ECTS will be established.

The Universities will share knowledge on common topics such as technical writing and science dissemination, intellectual property protection, entrepreneurship, business models, project management and research funding. With this approach, the optimal use of university resources by using e-learning is reached.

From the established curricula, these courses will allow the development of international Master degree programme (MSc) in TES. Wider dissemination access with direct industrial relevance and deployment aspects focusing on future developed markets is expected.

Workshops and conferences for different stakeholder groups, dissemination of the knowledge and an exchange of external PhD students are planned.

Through active engagement with different stakeholder groups in the project, research and market oriented inputs to the PhD topics were set up in the training courses. Through an online survey it was shown that over 85% of the survey participants were satisfied with the proposed content and 2/3 would host a student in their company. Expectations from industry and research institutes on PhD students can mainly be summarized in:

- personal abilities e.g. multidisciplinary, creativeness, impact awareness;
- social, economic and technical abilities e.g. understanding of the fundamentals of relevant technological aspects of thermal energy storage, R&D, applications and markets, modelling, system integration, testing and characterization of products.

The most attractive technical and non-technical topics reported from the industry were taken into account within the process of defining the courses. Many industrial responses reported the most attractive technical topics as being research methods, thermal energy technologies, the role of thermal energy storages in an energy system, development of new thermal materials, experimental testing, design, modelling, and optimization of thermal energy storage systems. The most interesting non-technical topics were energy policies in Europe and in international settings, basics of patents, technical implementation of an idea to a product and publication in a scientific journal.

In the traditional ex-cathedra way of teaching many teachers still “turn their back to the learners”, repeat the same messages year by year and write the same old classical equations. Furthermore, thousands of general online courses exist but there is a very low success rate compared to number of registered students. Therefore INPATH-TES uses the possibility of competence and skill-driven learning outcomes to educate future professionals.

The future role of teachers will be the design of overarching ILOs, the assembling of knowledge material and ALOs and moderate peer discussions, Figure 3. All leaning material is being implemented in the “flipped classroom” perspective in the EIT/KIC InnoEnergy pedagogical methodology of student-centred learning, aligned teaching and active learning.
By creating further synergies between INPATH-TES and other global organizations and initiatives, extension of the partnership and exchange of students will be made.

4. Conclusion

The main challenges which have been identified are the approval of the joint PhD programme by each of the participating countries. Although all participating countries in INPATH-TES are within Europe with similar preconditions, differences in the regulatory framework for the establishment of PhD programme subsist. The structure, the programme requirements and the admission criteria vary.

Among the European participating countries in the PhD programme, namely Austria, Belgium, France, Germany, Ireland, Israel, Italy, Latvia, Netherlands, Poland, Portugal, Spain, Turkey, UK, the duration of a PhD programme varies from two to five years. PhD programmes are offered in all participating countries as a full or part time study. In most of the countries, the supervisor assumes the principal role in determining doctoral training curriculum. In all of the participating countries, a Master degree is mandatory to access a PhD programme (exceptions in Germany, Ireland, UK and Poland).

Hence for the implementation of the PhD programme, a common approach in line with the legislative framework in each country must be defined and agreed on. It was found out that a simpler solution to cooperate between Universities in that area is with a joint supervision, also known as co-tutelle. A similar challenge exists with Master degree programs and therefore Memorandums of Understanding, credit point agreements and wider Bologna principles should be accounted for.

Nevertheless the final result of INPATH-TES will be a network to educate professionals on TES technologies for the European research and industry institutions. The partners will be the core of a future larger network of excellent R&D institutions, and industries for co-funding and industrial placement, sharing infrastructure capacities, and enhancing mobility of students.

5. Acknowledgment

This work is supported by funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 657466.

6. References

Re-thinking academic staff transformation in South African higher education: Towards a conceptual framework

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Abstract

One of the major challenges in higher education is inability displayed by South African universities in recruiting and retaining black staff members, a highly contested issue after apartheid. Related to this particular problem, two main sets of literature can be identified in the South African context. The first set concerns studies that predominantly deal with statistical equity profiling, patterns and trends in university staff. These studies discuss academic staff transformation using statistical equity profiling as a means of identifying the extent of demographic change, i.e. measuring how institutions are progressing in terms of structural dimensions of transformation and in terms of changing the demographics of their academic staff with reference to government policy on employment equity. They generally privilege quantitative methods in their analysis of academic staff transformation. While useful in mapping out the pace of change, they do very little in providing an understanding of the root causes of black staff underrepresentation, particularly the experiences of them, whether enabling or constraining. The second set includes those who go beyond staff profiles to deal with the experiences and meanings of underrepresentation. These scholars tend to suggest that formal structural barriers are removed through legislation which includes employment equity stipulations. They further point out that informal mechanisms of exclusion such as institutional culture become increasingly important in preserving privilege and as a transformative intervention. Within these, there are those who focus on race, class and gender. Furthermore, there are those who tackle issues of underrepresentation of academic staff from the diversity point of view. These two categories of literature have broadened our understanding of the impact of race, gender and class exclusion in university employment practices. Overall, a neglected analytical dimension in current studies is the role of power and identity within the discourse of academic staff transformation. Therefore, this paper seeks to develop a conceptual framework that brings together the concepts of 'structure', 'agency', 'power', 'identity' as key analytical tools to understand the academic staff transformation, an important dimension that takes seriously not only the external barriers (structural factors) but also the issues of subjectivity and agency.
Those who can do and those who can’t teach

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Abstract

An examination of some harmful information a young student may encounter if student is placed in a mathematics classroom with a teacher who has little or no content knowledge is discussed. Misconceptions in mathematical operations was studied greatly in the 50’s, 60’s, and 70’s. While educators seem to have moved their focus, we still need to be aware and able to guide students in a positive direction. Teachers absolutely must be able to teach in an academically appropriate way the students will learn math. Several examples of teacher’s lack of content knowledge can and will harm students academically are provided. These examples will support why we need a highly qualified in content knowledge and skilled educator in every math classroom. Teaching younger students has to be more than babysitting. Teachers with high content knowledge in the discipline for these lower grades must be a priority for all.

1. Introduction

There is an old adage that “those who can do and those who can’t teach” which has been around for many years and may have been true at some point in time but with the presence of the standardize tests today, it is just an old adage. There is much more to teaching that just reading a book or telling students something. Teaching in not just something to do when you can’t find a job. Just ask any successful teacher.

Teachers today are expected to by filling or guiding students to expand their cognitive knowledge every second of their waking day. Teaching is a career which presents teachers with a new challenge or two every day. It is not an easy job. You don’t get ‘coffee breaks’ in the morning and in the afternoon and you definitely do not get a two-hour lunch. You are lucky if you get a 2-minute bathroom break anything during the day and lunch is usually consumed while you are standing and observing students. [1], [2].

2. Literature Review

In this writing, this is a comparison of the content prepared teacher and the content unprepared teacher in the discipline of mathematics. This comparison will be made via several different viewpoints, such as review of literature, personal communications and surveys.

Today mathematics is one of the most important subjects for students to master and yet it seems to be the one to promote the most anxiety among the students. Students are bombarded by parents and other relatives who will say things like, “oh I could never do math so I guess you just inherited that too”. “Math is just so difficult, one has to be a genius to understand it”. “Math is easier for men as it is a man-thing”. Then the students are often taught silly little mnemonics hoping to help them learn the rules of math when many times it would be easier to just learn the rules. But often these mnemonics are not for the general but only specific problems [1], [2].

Students are expected to do fundamental problem solving daily.

Problem solving is defined in this study as a mathematical situational problem which requires multi-steps to derive the answer. The days of just teaching basic computation are gone. Textbooks no longer have computation problems i.e. #1-20 at the top of the page and then two or maybe three word problems at the bottom. In those classes of yesteryear, it was often heard students asking or begging to just do the odd numbers at the top and not do any of the word problems. The students often tried to bargain with the teacher almost anything if they could skip the bottom word problems. Teachers were no better than the students during this time frame, either.

Teachers did not want to grade the word problems as they took much more time and they could not just do a quick check or ‘X’. Until Randall Charles [3] in the mid 80’s took a stand and provided a method for grading word or stated problems, teachers were on their own. Many did not know how to evaluate except right answer or wrong answer. The ‘Check or X’ did allow the teacher to put a grade in the gradebook but it did nothing to help the students learn. Basically, it was a waste of time for both, teacher and student, Yes, the student did learn basic computation but did not gain any skills about learning to solve real life problems.

The work of Randall provided the teacher in the elementary grades with a rubric to grade those
problems. It was no longer a guessing game of how to evaluate the student’s work.

Another saying is “if you do not truly understand it, you cannot teach it”. In this writing, both sayings will be examined. We are investigating the importance of teacher’s content knowledge first in the teaching of mathematics.

In this work, we are using the definition of conceptual understanding of Hiebert and Lefevre [4].

Knowledge that is rich in relationships. It can be thought of as a connected web of knowledge, a network in which the linking relationships are as prominent as the discrete pieces of information. Relationships pervade the individual facts and propositions so that all pieces of information are linked to some network.

There are many reason why teachers do not have the content knowledge to be a strong teacher. In this study, we will not attempt to find or state reasons.

First, we know that new teacher is going into the classroom and we are going to presume she will do the best possible under the circumstances. The teacher is not out to deceive student however, the fact that she is the teacher of record gives the students the indication that she has conceptional knowledge of the subject.

Unfortunately, the deception will not last very long even with the youngest of students. Cole (personal communication) was often heard telling his elementary teacher candidates, the PHD.s need to teach kindergarten and first grade and the weak math teacher need to teach at the secondary level. He strongly believed the more advanced students would be able to master the math with or without an instructor but the young students needed guidance from someone who truly understood the concepts and not just how to work specific problems. [5].

When teachers have the content knowledge they will not be giving students so called ‘tricks’ which work on the problems today but will not work on problems tomorrow. Teachers with the content knowledge will only give students the generalizable algorithms for the students to be able to solve other situations. On the other hand, students are quick to pick up on a ‘math trick’ that will work for problem 1 but will not be the solution for all problems and this is what happens much of the time with a teacher of limited content knowledge.

3. Explanations

The teacher with limited content knowledge unknowingly gives rise to many misconceptions. One situation is when a teacher is introducing the students to area and perimeter. The area of a square is length of side squared or side times side. If the teacher has a square with length of 4 units on each side as an example. The teacher and the students quickly determine that the area of the square is 16 square units [6].

4 units

\[
A = s^2 = 4 \text{ units}^2 = 4 \times 4 \text{ units}
\]

\[
A = 16 \text{ sq. units}
\]

4 units

\[
P = 4 \times \text{ side} = 4 \times 4 \text{ units} = 16 \text{ units}
\]

4 units

If the teacher continues with the lesson and is going to introduce perimeter of a square. He/She may do either of two ways. 1) to determine the perimeter, you simply add the length of the sides therefore \(4+4+4+4 = 16\) units. 2) since the figure is all four sides are equal, therefore you can just multiply 4 (sides) \(\times 4\) units (length of side) = 16 units. True area is 16 square units and perimeter is 16 units, but students at this learning stage are focusing on getting a number and are not looking at the units.

As a result, many students when faced with different sized squares will compute just one, area or perimeter, and put the same figure in for both measurements. This can be a major stumbling block for the students in a classroom being guided by a teacher with very little content knowledge. It is best to use an example of a square of different length sides, such as 3 or even 5 units. The teachers with little content knowledge most likely will not be one to use manipulates and will only read and teach directly from the text book. The teacher with greater content knowledge might also have square tiles to be used as manipulatives for the students to move around and experience the different amounts. A misconception in this situation is many students will believe that the area and perimeter have an equal number. Some will go as far as telling an observer the only difference is the area has square units and the perimeter does not.
Misconceptions in math have been around most likely as long as people have engaged in any type of work in a mathematical sense. People in general are quick to jump to a conclusion that a rule, formula, etc. will work in all cases when it is only true for special one. An example is a formula to generate all the prime numbers. Many have been found but most have a flaw that it also generates multiples of the constant used in the formula.

Researchers in the area have offered as reasons for some of the error as 1) faulty rules interrupted in different context (such as when you multiply you always get a larger number… true if you are multiplying whole numbers but not true if you are multiplying fractions. 2) errors resulting from organized strategies (memorized algorithms and little crazy jingles) and lastly 3) students are brought up to believe that math is only used in isolated circumstances.

When young students are being taught addition, often they are told if you add

\[ 2 + 4 = 6 \text{ and } 4 + 2 = 6 \]

While this is true in addition, many young students take the rule to be applied to all situations. This is further strengthened when the student is learning multiplication but it isn’t true for subtraction and division. However, many students will apply this property to all math situations. As many young students are introduced to the concept of subtraction, they are told to just take the little number from the big one. Many teachers who lack content knowledge fail to tell and or show the students when and where it is appropriate. Yes, the rule is true for example A, however it is not true for Example B. It seems the student just remembers ‘you take the little number from the big one’ It is most likely a problem that the limited content knowledge teacher.

Example A

\[ 36 \]

\[ -12 \]

\[ 24 \]

In the above problem

Subtracting the smaller number

is correct.

Example B

\[ 41 \]

\[ 13 \]

\[ 34 \]

In this problem, subtracting the smaller

is not correct. This is a problem many young students encounter.

This seems like such a simply thing to help young math students learn how to subtract but we see when taken out of context it creates a problem for the student as he/she progresses in their math studies [8].

Another problem can be position. We all know that you start to do subtractions problems on the right but young students often can’t remember right and left. It is documented in the studies at the Shell Centre in the UK that a young student was able to do subtraction problems without any difficulties however, when she was promoted to the next grade and moved to a different classroom, she was not successful anylonger. Finally, after numerous attempts to rectify the the situation, the child was interviewed. According to the interview, she didn’t have a piano in the classroom so she did not know which side to start when solving the problem. It seems in the previous grade the teacher told her to always start on the side with the piano as there was one in that classroom. While this may have seemed to be a smart thing to do at time, if the teacher would have used some content knowledge this would not have been a problem. The teacher needed to provide the student with something that is and will be true yesterday, today and tomorrow. [8]

Fraction and decimals are difficult for many students as they just do not understand that one can have a part of a number. A part of a cookie, pizza or other food is like a different language to them. To make understanding even more difficult, one can have one or more wholes and then a portion of another. The sense of the

Another area of concern is when working with zero. Although it is often a place holder it is just that and can’t be ignored. For example 105 is one hundred plus no tens and five ones (units). When teachers with limited content knowledge encourage young students to just say that 105 is one hundred five, they are not recognizing that tens place in the number. This will lead to the student not being able to recognize the value of each and will also create problems if the student is to write the number is expanded notation.

\[ 105 = 100 + 00 + 5 \]

\[ = (1 \times 10^2) + (0 \times 10^1) + (5 \times 10^0) \]

Most likely if the student had been taught by a teacher with limited content knowledge, they would take the short cut and not included the \((0 \times 10^1)\). By not including that step the student is highly likely to not have the exponents correct. The math teacher must truly understand place value or the student will have many difficulties. Since using numbers raised to the zero power is math beyond the content knowledge of many teachers, it will be easier to skip and avoid questions from the students thus showing that void. But who will suffer is the student when trying to do math in higher grades.

Fractions and decimals are other confusing concepts. Many teachers just do not grasp fractional
parts greater than one or how to change a fraction to a decimal or back. As long as it is sharing cookies or pizza slices the teaching progresses along but when we get to other parts it is like a different language to them. To make understanding even more difficult, one can have one or more wholes and then a portion of another.

The scenario often used is that of the cowboy and the horse. This is to help the student learn to convert a fraction to a decimal. We will use the fraction of \( \frac{3}{5} \) to illustrate the story. Everyone knows a cowboy rides the horse and the horse does not ride the cowboy. The fraction is like a cowboy and his horse. The numerator (top number) is the cowboy and the denominator (bottom number) is the horse.

Everyone know after a long day of riding when the cowboy comes home, he goes in the house and the horse stays out doors

The cowboy rides his horse all day.

The two finally come home.

The cowboy unsaddles his horse and feeds him. Horse stays outside and the cowboy goes in the house to rest and eat.

Now we use this story to change a fraction to a decimal.

With that we now have

\[
5) 3.00
\]

\[
\underline{30}
\]

This little story may seem to work if it is a proper fraction being changed to a decimal however, when it is an improper fraction (greater than one), students seem to get mixed up as to who/what is the cowboy and horse. (There are many cowboy and horse methods to change fractions to decimals, however none has ever shown much promise as a true method to teaching understanding). While other teachers who do not have the content knowledge will tell the young students to put the bigger number in the inside (meaning the radical sign) and the little number on the outside. There is no mention of such mathematics terms as numerator and/or denominator.

What happens when the student reaches a higher grade level an the instructor uses proper mathematical terms and not the little cutey terms? Now the poor student is trying to remember if the cowboy is a numerator or denominator and what is the house? So many teachers who lack the content knowledge try to rely on tricks to teach is becomes scary. One of the problems also is the teachers are often facing high stakes testing. Therefore the teachers are worried about the moment and not preparing the students for future years. The teacher is just trying to have the students past the test while in their grade and classroom. Unfortunately, the stakes are so high for the teacher, he/she doesn’t care or can’t afford to care what happens the following year or beyond that.

To someone with content knowledge, it seems it would be easier to just use the proper terms and do the needed operations. The manner in which this is illustrated almost seems it is for a special needs classroom. However, it is not sure if it is the students who are special needs or the teacher who had the needs. If we move to try to illustrate on a number (track line) line, we have greater confusion.

The list is almost endless. Teachers with limited content knowledge do not need to be in the classroom. This limited content knowledge can and will result in the students developing misconceptions. It seems to be common knowledge that once something right or wrong is rooted in one’s memory, it is difficult to erase or remove. One such example is the pronunciation of a word. If a child’s parent mispronounces the word and the child is exposed to that word several times, most likely that child will also mispronounce the word also. This seems to be engraved in the child’s memory bank forever and even when the person is up in years, he/she will still pronounce that work incorrectly [8].

The word athlete often gets an ‘a’ added as a middle sound, espresso has an ‘x’ in place of the first ‘s’, a
chest of drawers is called a ‘chester drawers’, film is called ‘fillum’, picture is very often pronounced pitcher which is a totally different word (picture is a copy of something you hang on the wall where a pitcher is either a member of a baseball team or a vessel for you to use to pour and the list is very close to being infinite. In addition, if a child’s parent or other relative does not use standard English or has an accent then other word may appear.

Unfortunately, some of these are in the child’s belief system and are resistant to change through traditional instruction. Teachers with limited content knowledge most likely will only have the methods suggested in the teacher’s manual. When the teacher has a limited content knowledge, he/she will not have a repertoire of many different methods approaches to help erase the misconception. Simply repeating a lesion or trying to make it clearer is not the answer according to research. Students are basing their reasoning on strongly held misconceptions. Many educators have documented in their studies that misconceptions truly create problems for students.

As part of a recent survey conducted by Patton and Woods in 2017, students reported they had little to no faith in the accuracy of teachers who they felt did not know the content. The students were reflecting on some of the teacher they had personally encountered during their own education. These students reported that most of the time it was a wasted year in that class. They stated this was especially true if the instructor was a coach who was placed in a core area which was not his/her discipline. Students reported in the math classes, the assigned problems were either right or wrong according to the back of the book and there was never any explanation [9].

In this same study students reported they learned much more with the teacher who knew the content. They liked the teachers who would work problems with them an explain the process step by step rather than answer only. The students did not like teachers who came into to class with all the problems worked on a sheet of paper and then just copied to be visible for the students.

Most likely if the student had been taught by a teacher with limited content knowledge, they would take the short cut and not included the (0 X 10^1). By not including that step the student is highly likely to not have the exponents correct. The math teacher must truly understand place value or the student will have many difficulties.

There is an endless list of misconceptions students face in their studies of math. Some are due to the young students trying to do some tricks to make homework go faster however many are due to the teacher having the lack of content knowledge. Unfortunately some math programs on the market have flaws and were not properly reviewed or were self-published. School districts and parents are at a disadvantage with these. As consumers we believe that if something is on the market, it has be tested and is safe and good for all.

4. Discussion

As we have discussed a few of the misconceptions some are believed to be the result of teachers having limited or very little content knowledge. However we must also examine some of the myths which teachers are reminded each day. Some of the myths may be due the the more experienced teachers just not wanting to mentor the young educator and then some may not be able to help as they have a very limited content knowledge too.

If the young teachers have only the limited content knowledge, using the myths is more likely a way to try to justify the lack of knowledge while providing a reason to not try. If a young teacher is having difficulties teaching a concept, her peers at the grade level meetings may try to make her feel better by saying something such as, “Some people have a math mind and some don’t”. this myth might make her feel a little better emotionally but does little to nothing to help her with her teaching problem. On another day, the teach might be seeking help with a student who is rather slow but progress in the class. He is having difficulties learning how to multiply. Rather than offer some suggestions for her to try and help the student, the peers might say something such as “math requires a good memory” but not offer any ideas or suggestions to help teach the students.

Teachers are the backbone of any education system, as they provide the pulse in the successful implementation of any educational program. However, when we look at the teacher content knowledge vises their teaching abilities (methods, ability to explain for understanding) it almost comes to be another old adage “What came first the chicken or the egg”. Just take a moment to think, if the teacher does not have the content knowledge and teacher knowledge what do the students receive? A friendly face and friend. But that is not the mission of a student’s schooling. Are students being educationed for live long learning and to be successful members of society? On the flip side, the teacher who knows teaching stratgies but does not have mathematics knowledge, could be a negative detrimental in an early classroom. That teacher might be teaching rules, algorithms which are incorrect for mathentics in a specific case or time. Fractions is a concept that many teachers seem to find cute little stories, etc to make it easier for the students for a specific time but then when the students moves forward to more complex math concepts these litte cute stories not longer work and
the student becomes frustrated and no longer wants to even think about math.

It seems to come to the fact, yes we need a highly qualified teacher in the classroom. Today’s highly qualified teacher is one who has the content knowledge and the pedagogical skills to teach students. This highly qualified person absolutely must have the content knowledge and not be using trickery to solve the specific problems but be able to guide students to be able to solve all in that concept. *

After carefully researching the misconceptions students have in just the mathematics discipline** if the teacher is not qualified, don’t you want a a teacher who can and does to be the teacher for your child? A successful teacher today, is one who can (knows the content) and does (teach the discipline).

5. References


Author Notes

• The term highly qualified teacher in this writing is not the same as United States policy which was put in effect during the Bush Administration.

• Since the misconceptions are found in many of the math topics and when researching teaching to resolved misconceptions, it is clear that each discipline also is plagued with students having misconceptions.
Session 43: Course Management and Pedagogy

Title: An investigation of the important students’ Personality Traits and Attitude towards the Course of Chemistry  
(Authors: Tayyaba Muhammad Akram, Fatima Javed, Sumaira Majeed, Hamid Ikram, Anam Ilyas, Aisha Sami)

Title: The Evaluation of Service Learning Components  
(Authors: Cathy S.P. Wong)

Title: Variety of Grading Methods Employed for Enhanced Learning  
(Authors: Rania Al-Hammoud, Parisa Bohloouli-Zanjani)
An investigation of the important students’ Personality Traits and Attitude towards the course of Chemistry

Tayyaba Muhammad Akram¹, Fatima Javed¹, Sumaira Majeed¹, Hamid Ikram², Anam Ilyas¹, Aisha Sami¹
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²Department of Education, Government College University, Faisalabad, Pakistan

Abstract

Personality is a significant aspect in development of students’ attitude towards the course of Chemistry. The basic intention behind the conduction of this research was to inspect the relationship among personality traits and students’ attitude towards the course of Chemistry. Results found in this research work also determine the effect of gender and class on students’ personality along with affective traits of attitude. The sample size was consisting of 780 secondary school (male and female) students. Valid and reliable instrument was developed. Data was analyzed through correlation and t-test. It is concluded that there is considerable mean effect of demographic variables on students’ personality and attitude. Whereas t-test revealed that gender (male and female students) as well as class (9th and 10th grade students) showed significant difference in affective characteristics of attitude and effect of personality traits towards the chemistry course. Results and findings in this research paper is useful and significant for parents, teachers, curriculum developers and educators in order to reform, plan and design curriculum and teaching methodologies according to the requirement of the modern world.

1. Introduction

Science and technology plays an essential role in advancement of any national economy. The developed countries have already familiar with the significance of chemistry course in their national economy. Research evidences have shown that chemistry has strong influence on quality of life and nation building.

Any nation aiming to be systematically and technically established must have suitable level of chemistry tutoring [1]. These lead chemists in 2008 to declare “what on earth is not chemistry”. To develop a positive attitude of students towards chemistry is the major responsibility of science educators. Personality plays an important role in determining students’ attitude towards chemistry.

Personality is a set of persistent and distinctive arrangement of judgments, approaches and behavior that makes persons different from each other.

1. Enormous Five Important Personality Attributes

The five-factor model of personality is aset of group of personality attributes in relations of five elementary proportions. A comprehensively used personality model, McCrae and Costa’s [3] NEO Five Factor Model, or “Big Five Model”, comprised of the subsequent personality components:

- Extraversion
- Agreeableness
- Conscientiousness
- Openness to Experience
- Neuroticism

Figure 1. The ‘Big Five’ Factors Personality Model

The first important component of the personality trait that has immense effect is Extraversion which leads to the tendency to be socially active, fun-loving, talkative, assertive, out-going and positive to take group leadership positions and expertise cheering effects such as liveliness, enthusiasm and eagerness. The second important component is of the personality trait is Agreeableness, it is defined as the trend to be kind, helpful, trusting, accommodating, loving, and gentle while persons with little friendliness are despicable, distrustful, and irritated.

The third component is Conscientiousness, it is the tendency to be Hardworking, Motivated, well organized, dutiful, self-discipline and achievement-oriented. People with low conscientiousness are relaxed, impulsive, and careless. Fourth component

2. Inference and Conclusion

Results found in this research work also determine the effect of gender and class on students’ personality along with affective traits of attitude. Results and findings in this research paper is useful and significant for parents, teachers, curriculum developers and educators in order to reform, plan and design curriculum and teaching methodologies according to the requirement of the modern world.
is Neuroticism, it is the trend to experience humble expressive modification and knowledge of undesirable feelings such as nervousness, self-doubt, and aggression.

The final component is Openness to experience, this is the tendency to accept different concepts and also reveals originality, thoughts, and open-mindedness.” Directness to experiences leads to curiosity about an individual inner and outer world [4].

3. Approach

Approach is some of the further most influential concept in terms of societal mindset [5]. Approach can be well-defined in the form of emotional state that an individual posses about an entity, built on his or her experience, understanding and certainty. This explanation is established on the model that approach comprised of the three constituents of cognition, affect, and behavior [6]. Societal psychologists have also extended viewed approach as having three constituents (see Figure 2):

![Figure 2. Theoretical Structure for Approach](image)

The cognitive constituent is the set of theories about the traits of the approaches. The Behavioral component relate to the manner person act toward the situation. The Affective constituent comprised of frame of mind about situation i.e., the opinions and feelings any one has toward an approach object such as chemistry lab, chemistry instructions and chemistry course are discussed as important point of view. We can say “Affect” indicates how persons feel and think about the situation (both moral and immoral approaches), as it can be conveyed by biological action or statement.

Affective features are very far significant as cognitive variables in effecting learning consequences, professional varieties and use of relaxation stage [7]. Affective features include in this reading are (see Figure 3):

![Figure 3. Agenda of Affective features of Approach](image)

According to ligature interest is a very precise form of approach. When we are involved in a specific occurrence or action, we show favour and interest to study specific subject and provide time to it [8].

Gredler, Broussard and Garrison (2004) defined inspiration as “the quality that changes us to do or not to do something” [9]. Turner (1995) explained inspiration as mental commitment, which is defined as “intentional usage of advanced self-regulated learning approaches, such as giving responses, association, preparation, and observing”[10]. More over anxiety is the feeling of tension, uneasiness, nervousness, and worry, where as, ’Pleasure is an excitement that is about how we feel, not about what we think’. Psychologists have well-defined pleasure as an emotional state of desire. Pleasure of chemistry, physics or biology was related with sex differences in utmost of the studies [11]. It is found that girls enjoy natural sciences and males enjoy corporal sciences. Chemistry and physics as the least pleasant focuses. According to Katarina Salta, (2002) the mainstream of pupils diagnose that chemistry understanding is beneficial to understand phases of their daily life, but only 4% of pupils show their desire to carry on chemistry studies.

Success inspiration has been well-defined as the degree to which persons vary in their requirement to struggle, to achieve rewards, such as physical pleasure, applause from others and approaches of distinct mastery [12, 13].

4. Significance of the Study

In development and implementation of curricula and instructional performance the considering of Personality is an important criterion in determining student attitude towards chemistry. Current research work would be beneficial for curriculum designers and classroom teachers to apply relevant approaches for enhancing meaningful chemistry learning. It also supports to develop positive attitude towards chemistry. Therefore, the knowledge of students’ personality and attitude would be supportive equally in academic and career counseling.
5. Methodology

5.1. Research questions

The research answered following questions.
(1) if there is relationship exists between students’ personality and attitude in chemistry
(2) If there is any significant effect of different demographic variables on students’ personality and attitude.

5.2. Research design

5.2.1. Sampling
The accessible population for the study contained chemistry students from secondary schools in Lahore city, Pakistan. O-levels chemistry students were excluded. 780 chemistry students selected through stratified random sampling technique as a sample size for the research. Further distribution of the sample is shown in Figure 4.

![Figure 4: Distribution of sample from three sectors (government, semi-governent and Private), N=780](image)

6. Development and validation of instrument

To achieve the objective of the study, researcher constructed a questionnaire comprised on 37 statements. With the expert opinion constructed questionnaire is validated and to measure the consistency of the tool pilot study was conducted to ensure the reliability by 0.84 Cronbach’s alpha value. The students had to respond by expressing their level of agreement on a five-point Likert scale. The questionnaire includes six demographic variables (gender, age, class, choice of course, family type, parents’ qualification) and two factors.

7. Data analysis and findings

The data was analyzed through the mean, correlation and t-test

7.1. Data analyses

Response was analysed through mean values and correlation test.

Table 1: Illustrates that there is a strong relationship between “Openness to Experience” with Interest, Motivation, Enjoyment, Importance, “Openness to Experience” and “Confidence” and “Attitude”. There is also a strong relationship between “Personality” with Motivation, Anxiety, Confidence and Attitude. Whereas, there was a weak or no correlation found between rest of the factors of “personality Traits” and sub-factors of “Attitude”.

![Table 1. Correlation between sub-factors of personality trade and attitude.](image)

Table 2 indicates that there is a significant mean difference of perception about factors and sub-factors between the male and female students towards Chemistry course at secondary school level.

![Table 2. Effect of gender (male and female) on factors and sub-factors. p≤0.05](image)

Results showed in Table 2 indicate that mean difference of perception between male and female students with i) factor Personality, t-value (2.237) p<0.05, ii) with factor “Attitude” at secondary school
level with t-value (2.871) p<0.05 is significant. Similarly, there is a mean difference between the perception of male and female students with iii) sub-factor Extraversion with t-value (5.070) p<0.05, iv) with sub-factor Agreeableness at secondary school level as t-value (4.220) p<0.05, v) with Conscientiousness t-value (3.550) p<0.05, vi) with Interest, t-value (3.420) p<0.05, vii) with Enjoyment, t-value (3.730) p<0.05, and viii) with Achievement Motivation t-value (4.40) ) p<0.05 is significant.

Table 3 indicates that there is a significant mean difference of perception about factors and sub-factors between the 9th and 10th class students.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean</th>
<th>Df</th>
<th>t-value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Personality</td>
<td>3.56</td>
<td>3.66</td>
<td>778</td>
<td>3.258</td>
</tr>
<tr>
<td>ii. attitude</td>
<td>3.45</td>
<td>3.54</td>
<td>778</td>
<td>2.241</td>
</tr>
<tr>
<td>Sub-factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Extraversion</td>
<td>3.80</td>
<td>4.07</td>
<td>757.08</td>
<td>5.96</td>
</tr>
<tr>
<td>ii. Agreeableness</td>
<td>3.78</td>
<td>3.94</td>
<td>778</td>
<td>3.11</td>
</tr>
<tr>
<td>iii. Importance</td>
<td>3.65</td>
<td>3.90</td>
<td>778</td>
<td>4.72</td>
</tr>
</tbody>
</table>

Results showed in table III indicate that there is a considerable mean difference of perception different class students with i) factor Personality, t-value (3.258) p<0.05, ii) with factor “Attitude” at secondary school level with t-value (2.241) p<0.05. Likewise, there is a noteworthy mean difference among the perception of male and female students with iii) sub-factor Extraversion with t-value (5.96) p<0.05, iv) with sub-factor Agreeableness at secondary school level as t-value (3.11) p<0.05, , vi) with Importance, t-value (4.72) p<0.05 towards Chemistry course at secondary school level.

8. Discussion

In this research work we studied and analysed the relationship among personality traits and attitudes. The effect of gender and 9th and 10th class perception on personality and chemistry course related attitudes of secondary school students (Table 1, 2 and 3) is also studied.

In this study researchers found the Correlation r-value shows significant strong positive relationship between “Openness to Experience” with interest, motivation, enjoyment, importance, confidence, attitude. Similarly strong correlation between “Personality traits” with motivation, anxiety, confidence and attitude.

While the previous research reveals that attitudes of students to science exhibit positive relationship with agreeableness, extraversion, openness, and conscientiousness towards science.

Researchers found through t-test that the significant mean difference exist between gender(male and female) and extraversion, agreeableness, conscientiousness, personality, interest, enjoyment, achievement motivation and attitude at secondary school level towards the subject of chemistry (Table 2 and 3).

The results found in this study reveals that the significant mean difference between Class (9th and 10th grade) and, personality (factor), attitude (factor), extraversive (sub-factor), agreeableness (sub-factor), importance (sub-factor) towards chemistry at secondary school level (Table 3) while the previous research reveals that students’ attitudes is rarely studies by chemistry educators. A decline in the attitude toward the course of chemistry was also found in present research [14].

9. Conclusions, recommendations and future study

The results in this research work reveal that personality has positive control on development of students’ attitude towards chemistry. The findings emphasize the need for understanding of different personality traits possessed by chemistry students and that all negative outlooks about the subject should be altered. Results in this study also show that demographic variables have significant effect on students personality and attitude towards chemistry.

The recommendations drawn on the basis of the findings are stated below:

The information about students’ personality and attitude will help Chemistry teachers to use different mediums of instruction which suits to students’ personality that can also help to develop more positive attitude to learn the subject of chemistry as dif-ferent students have different preferences for different in-structional techniques. Some students prefer student-centered instructional methods whereas others prefer teacher-centered instructional methods.

School career counselors should be made to organize regular career guidance to students and this in turn, will make the students know the need or importance of chemistry to their profession, or in furthering their education.

Students must be provided all the equipment while working in the Chemistry lab. All the experimental tasks should be related with the daily life.

Parent and teacher meeting should be held on regular basis and parents should give freedom to their children to choose the course in which they have interest. Parents, teachers should be aware of students differences in personalities this will help parents and teachers to guide students for choosing subjects that suits to one’s personality.
Chemistry teachers should be given positive reinforcement to students who make efforts in chemistry work. This will make other students put more efforts in learning chemistry.

In order to excel in this era, it is vital to cater students’ attitudes during the teaching. More researches should be done in this field. The practical nature of chemistry should be emphasized while teaching. The student centered techniques will stimulate the interest of the students. More chemistry related extra-curricular activities should be organized for the students this will enhance the development of positive of positive attitude towards chemistry [15].

10. References


The Evaluation of Service Learning Components

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Abstract

This paper reports on the findings based on an on-line questionnaire administered to a small group of undergraduate students who have to take a compulsory service learning subject. The aims of the study are to investigate whether the goals of the service learning subject have been achieved and to collect more factual information about some implementation issues. The results show that students in general believe they have developed a stronger sense of civic responsibility and that they have improved a number of personal skills. Some facts relating to the administration of the service learning subject uncovered through this study will contribute to the improvement of the overall delivery of this subject as well.

1. Introduction

Studies in learning through community service in tertiary education in Hong Kong have shown that students have benefited tremendously [1-4]. Service learning (SL) can be defined as “...an active form of teaching and learning in which all involved, namely the students, faculty, community sponsors, mentors, and those served, engage together in activities, that address human and community needs, with structured opportunities designed to promote learning and the development of all.” [5].

The Hong Kong Polytechnic University (PolyU) has made service learning a compulsory part of the new 4-year curriculum and one department is currently running two service learning (SL) subjects. One is tailor-made for their majors and the other one is a "general university requirement" (GUR) subject for all undergraduate students. At the same time, SL appears to overlap with two other modes of learning activities on campus: Work-Integrated-Education (WIE) and Community Service (CS). The three modes of operation should complement, rather than compete with, each other. However, more information should be gathered from all participants involved in order to make a well-informed decision about how these different modes can operate more smoothly and effectively. Therefore, a project was conducted with the aim to evaluate the effectiveness of the two SL subjects currently being offered and to clarify the relationship among SL, WIE, and CS.

2. Methodology

2.1. Research questions

The project intends to evaluate the two SL subjects in order to fine-tune the details, such as the assessment methods, the time frame of the subjects, how to solve problems encountered in planning and delivering the service learning projects, mode of collaboration with NGOs, etc.

As mentioned above, the current project aims to address the following issues:
(i) Have the SL subjects been able to meet the general goals of SL, namely to help our students develop a sense of social responsibility and develop their personality at the same time?
(ii) What are the strengths and weaknesses of the current mode of operation?
(iii) What exactly is the relationship between SL and other modes of learning activities (e.g. WIE and CS)?

It is proposed to conduct an in-depth analysis of the service learning subjects and community service through two methods: questionnaires and individual interviews.

Only the results and analysis of the questionnaires are reported in this paper.

2.2. Method of study

An online questionnaire was designed to collect feedback from students. It consists of two parts with a total of 19 questions asking the students’ views on issues relating to the three research questions above. There are six questions in Part A and 13 in Part B. The questions in Part A ask students about their preferences in when to take the SL subject and which SL subject they may take. The ones in Part B ask students to rate, on a scale of 1-5 (1 being “strongly disagree” to 5 being “strongly agree”), some statements about their experience in taking the SL subjects. For example, statement 8 is “I think that
taking an SL subject can enhance my sense of civic responsibility and engagement.”

A total of 33 students responded to the questionnaire. The questionnaire results are presented in Section 3 below.

3. Results of questionnaire

The results of the questionnaire will be presented with reference to the three research questions listed in Section 2.1. above.

The first issue concerns whether the goals of the SL subjects have been achieved. Nine questions (Q7, Q8, and Q9a-Q9f) specifically address this issue. The results in Figures 1 to 9 in the appendices show that the students are all very positive about the effectiveness of the SL subjects they took. They either “strongly agree” (9%) or “agree” (79%) that the SL subjects help their personal development (88% in total, see Figure 1).

In terms of the application of knowledge acquired in their undergraduate programme, they either “strongly agree” (15%) or “agree” (70%) that while taking the SL subject, they can apply their English knowledge (85% in total, see Figure 3).

In addition, they either “strongly agree” or “agree” that many of their skills were improved through the SL subjects: their English skills (85% in total, see Figure 4).

Their communication skills (97% in total, see Figure 5).

As well as enhance their sense of civic responsibility and engagement (24% “strongly agree” and 64% “agree”, see Figure 2).

In Figure 2, Goal: civic responsibility

Figure 3. Goal: apply English knowledge

Figure 4. Goal: enrich English skills

Figure 5. Goal: enhance communication skills
Their critical thinking skills (82% in total, see Figure 6),

![Figure 6. Goal: improve critical thinking](image)

It is noteworthy that the percentages that students agree to their communication skills, problem solving skills and ethical reasoning skills having improved are all above 90%.

The second issue focusses on implementation.

When asked about which year they prefer to take the SL subject, 73% of the 33 students chose Year 2 and 18% chose Year 3. Only 6% said Year 1 and none mentioned Year 4. In other words, most students would like to take the SL subject when they have had some university education but not till the very end of their studies.

Nearly half of the students (46%) would like the SL to be taken in semester 2 while 30% prefer the summer semester. Only a small percentage (15%) have chosen semester 1. In terms of the overlap of SL, WIE and CS, students’ responses show that 67% (21% “strongly disagree” and 46% “disagree”) of the students do not think that SL and WIE are similar while 33% do (see Figure 9).

![Figure 9. SL similar to WIE?](image)

As to whether SL and CS are similar, the responses are just the reverse: 70% (18% “strongly agree” and 52% “agree”) think that they are while only 8% think they are not similar (see Figure 10).

![Figure 10. SL similar to CS?](image)

Their problem solving skills (91% in total, see Figure 7),

![Figure 7. Goal: improve problem-solving skills](image)

And their ethical reasoning skills (94% in total, see Figure 8).

![Figure 8. Goal: enhance ethical reasoning skills](image)
In summary, the goals of the SL subjects which are to engage students as civic citizens and to enrich their personal development have been achieved. The results also show most students prefer to take the SL subjects in Year 2 Semester 2. It is evident from the students’ responses that they view SL and WIE as quite different but SL and CS are similar.

4. References


Variety of Grading Methods Employed for Enhanced Learning

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Abstract

Before starting a course, an instructor puts a lot of effort into administering how the course will be managed. These efforts may include requesting required resources well in advance, preparing handouts, deciding on proper evaluation methods, and etc... Properly planned course elements have positive effect on student learning. The grading methods and distribution plays a significant role in the efforts that students put into each element of the course and their learning progress. Therefore, proper initial planning on the grading scheme and assessment methods is critical for student’s success and positive learning experience.

This paper reflects and describes how the grading scheme and assessment methods changed with time to increase students’ engagement and enhance their learning experience. Examples include:

• Use of online submission and grading system “Crowdmark” co-founded by James Colliander and Martin Muñoz of University of Toronto. Crowdmark offers important benefits for the management of assignments and tests particularly in large enrolment courses. Using this system, detailed grades are automatically made available online - making it easy to monitor student’s performance on each individual question and identify learning achievements gaps. Crowdmark also increases productivity by enabling the instructors to promptly return the exams with rich feedback, reducing the chance of misplaced papers and saving time for students, teaching assistants, and instructors.

• Two-stage exams that help students understand misconceptions on the spot. This technique is utilized in 3 different methods:
  1- First students write the exam individually - no collaboration is allowed. In the second stage (after a week from the completion of the first stage), students in groups of 4 revisit, discuss, and solve two of the exam’s questions during their normal weekly tutorial sessions. Allowing few days to test the students on the same questions encourages them to reanalyze the problems on their own and grasp the concept in more details preparing them for the second stage. In this method multi-part long answer problems can be used.
  2- Students start by working on multiple choice problems individually for one hour. Second stage follows immediately after the first one. Groups of 4 students revisit all the questions collaboratively for 30 minutes. Each student fills his/her own answer sheet based on new understanding of the material after the group discussion. Having both stages in one session provides valuable instant feedback.
  3- Third method is through the use of scratch cards and a group quiz following a single quiz. The students initially do the quiz on their own. Following the quiz completion in the first 60-minutes, the students will be teamed up in groups of four where they work collectively on solving a slightly modified version of the quiz (to include multiple choice answers) using scratch cards with an asterix under the correct choice. This adds a gamification element to the assessment allowing the students to enjoy learning.

• Participation graded through the use of clickers and discussion forums. This is another method to help the students learn from peer discussion and getting immediate feedback on their thinking process.
Grading schemes have changed significantly based on observed learning enhancement by implementing different grading methods throughout the years. These different methods have added a new exciting element to the classroom while eliminating some of the stresses that students might face with the traditional exams.
Session 44: Higher Education

Title: Academic Integration of Students of Ethiopian Origin in Israeli Universities  
(Authors: Rafi Feuerstein, David Tzuriel, Shlomit Cohen, Anat Cagan, Lea Yosef, Haim Devisheim)

Title: Millennial Generations’ Attitude Towards The Usage Of Social Media Devices (SMDs) In Nigerian Universities  
(Authors: David Ugwu, Chinelo Joy Ugwu, Josephine Uzoamaka Anekwe)

Title: Digital Literacy: Making Access Equal Success  
(Authors: Aubrey Statti, Kelly Torres)
Academic Integration of Students of Ethiopian Origin in Israeli Universities

Rafi Feuerstein, David Tzuriel, Shlomit Cohen, Anat Cagan, Lea Yosef, Haim Devisheim
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Abstract

The current criterion for acceptance to universities in Israel is based on psychometric tests which presents a strong barrier for acceptance of students of Ethiopian origin (SEO) to the universities. The main goal of the project developed at the Feuerstein Institute is to enhance integration of SEO into Israeli society by means of their academic integration. A selection process for university admission was based on the Learning Propensity Assessment Device (LPAD) and an interview. The LPAD is a dynamic assessment which includes pre-teaching, teaching and post-teaching test. Following that all students participated in a short-term learning skills program for university studies using the Feuerstein Instrumental Enrichment program. A group of SEO (n = 665) with low psychometric score, applied to the Feuerstein Institute for assistance in admission to university. All applicants were administered the LPAD and were interviewed. A group of 155 (23%) candidates were selected for the project; their psychometric score was significantly lower (M = 512.47, SD = 79.64) than the national average (M = 632.83, SD = 53.95). Out of all students who began their studies at the university, only 5% have withdrawn as compared to 7.5% on national sample. The findings indicate that use of dynamic assessment may be considered as a more effective mechanism of selection of students with depriving background to the university than the standardized psychometric test.

1. Introduction

The current criteria for acceptance to universities in Israel is based on psychometric tests and average score on matriculations exams. These psychometric test criterion presents a strong barrier for acceptance of students of Ethiopian origin (SEO) to the universities. The reasons they tend to score low is not necessarily a reflection of their learning potential. There are social and cultural factors which explain their low scores. In the 2013-2014 academic year, only 0.9% (2,785) of all students studying in institutions of higher education were of Ethiopian origin as compared to 2% in the population [1]. The Ethiopian immigrants, upon arrival to Israel, had to overcome a gap of civilization and information of several hundred years and had to adapt to the Israeli society [3]. Coming from an illiterate society where their “rich” culture was transmitted orally, they had to go, upon arrival to Israel, through rapid change and adjust to differences in both material and symbolic tools. For example, they might not see the importance of responding quickly in academic tasks, and demonstrate lack of proficiency in the dominant language, and deficient cognitive functions required for successful academic achievements. In addition, many immigrants experienced traumatic situations on their journey to Israel. For many the change in the role and status of the parents in the family, in the new land, cause difficulties of coping with a discriminating and threatening new environment.

The main goal of the project developed at the Feuerstein Institute is to enhance integration of citizens of Ethiopian origin into Israeli society by means of their academic integration.

2. Method

A selection process for admission to the university was developed based on the Learning Propensity Assessment Device (LPAD) and an interview. The LPAD [2] is a dynamic assessment set of instruments, each includes pre-teaching, teaching and post-teaching test. Following the selection process all students participated in a short-term learning skills and preparedness program for university studies program using an abridged version of the Feuerstein Instrumental Enrichment program [4]. A group of SEO (n = 665) with low psychometric score, applied to the Feuerstein Institute for assistance in admission to university on their own initiative. All applicants were administered tests from the LPAD and were interviewed for non-intellective factors. For each applicant accepted to the program a psychoeducational report and suggestions for specific departments was given. GPA scores were collected at the end of each academic year.
3. Results

Assessment of cognitive modifiability based on LPAD scores showed significant improvement from pre- to post-teaching, $t(154) = 11.44$, $p < .001$, $\eta^2 = .53$, which indicates high learning potential. A group of 155 (23%) candidates were selected for the project. The psychometric mean score of students accepted to the program was significantly lower ($M = 512.47$, $SD = 79.64$) than the national average ($M = 632.83$, $SD = 53.95$) and their matriculation grade average was significantly higher than the national average. Percentage of admissions to university departments per level of department prestige was: High = 45.8%, medium = 38.7%, low = 15.5%. Out of all students who began their studies at the university, only 5% have withdrawn as compared to 7.5% on national sample. The GPA average of students of Ethiopian origin ($M = 77.88$, $SD = 11.08$) was significantly lower ($t(77) = -6.76$, $p < .001$) to the overall university GPA average ($M = 86.12$, $SD = 2.66$). It should be noted that range of GPA scores was much greater (25-97) than the overall score of the population. No significant differences were found between dropped out and continuing students in the psychometric test, $t(151) = -1.06$, $p = .29$ and in the average grade of matriculation, $t(142) = .02$, $p = .99$. The prediction of GPA scores by LPAD ($F(12,107) = .85$, $p = .60$) and Psychometric score ($F(1,142) = .38$, $p = .54$) were not significant.

4. Discussion and Conclusion

The findings indicate that use of dynamic assessment may be considered as a more effective mechanism of selection of students with depriving background to the university than the standardized psychometric test that is typically used. The LPAD was found as an effective factor in the selection process that enables students to be admitted to the university and succeed. The finding that the dropout number of student of Ethiopian origin was not significantly different than that in the population, indicates that they have similar intellectual skills to succeed in academic studies. It should be emphasized that half of the students of Ethiopian origin chose to study in high-prestige departments. Although their GPA score was significantly lower than the rest of the students they still managed to succeed. Both the psychometric test and LPAD scores do not predict the GPA score. This finding was expected due to the limit of range of score; only those with relatively high learning potential were selected. From a statistical point of view if all candidates would be accepted, we probably would get a significant prediction. The fact that the SEO received higher average matriculation score than the population average despite their lower psychometric score indicates that academic success does not derive necessarily from low cognitive skills. The similar dropout rate of SEO as in the population and their academic success, put in question the popular long years of use of the psychometric test as a major instrument for accurate selection.

5. References


Millennial Generations' Attitude Towards The Usage Of Social Media Devices (SMDs) In Nigerian Universities

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Abstract

The unprecedented interest of the millennial generation towards the use of social media devices (SMDs) has increasingly become a source of concern to academics in Nigerian universities. Observations have shown that these millennia’s have both positive and negative attitudes towards the usage of social media devices as well as various reasons for its usage. These observations have formed the basis for this study, in which a descriptive survey design was adopted to examine the attitude of millennial generations. Six research questions and four hypotheses guided the study, which was carried out in four Nigerian Universities specifically from the South–South region. The study assessed the regularity of usage, the most frequently used SMDs, the reasons for using them and whether age is a contributing factor from the millennia’s’ perspective. The population comprised of all three hundred (300) level students from both Federal and State Universities, totaling 3,960 (of which 2,120 were Federal and 1840 were State). A stratified random sampling based on gender, individual consent and a 300-level criterion were used to select the participants, while purposive sampling based on ownership (Federal or State) was used to select the Universities. The instrument for data collection was a trail-tested, self-structured questionnaire titled Millennial Social Media Usage Questionnaire (MSMUQ). The reliability co-efficient was computed for six sections; A=0.80, B=0.92, C=0.81, D=0.84, E=0.76 and F=0.82 using the Crombach Alpha Technique. Analyses were made using Mean and Standard Deviation for the research questions. T-test and ANOVA statistics were used to test the hypotheses at a 0.05 level of significance. The results showed that the millennial generation has a positive attitude toward the usage of SMDs for social activities but a negative attitude for academic purposes. There is no significant difference in attitude based on gender, however, age was found to be a factor in SMDs usage in favour of those between 21 – 25 years. It was also found that there is no significant difference in attitude by types of universities. Whatsapp ranked first to be the most accorded for establishing relationships with students in other universities across the globe. The recommendation is that the millennial generation should cultivate a positive attitude towards the usage of SMDs for academic purposes.
Digital Literacy: Making Access Equal Success

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Abstract

Current learners are growing up in a digital age in which they are immersed with technology. As a result, learners have immediate access to a wide array of digital resources. However, students may not possess digital literacy skills in which they understand how to simply go beyond searching for information to carefully and critically analyzing the resources that they locate. Researchers define digital literacy skills as referring to individuals' abilities to plan and monitor their use of online search strategies to determine appropriate online sources. Similar to other learning strategies and skills, students may need to be explicitly taught digital literacy skills. Through activities such as the RADAR technique, mindful reading student led discussions, scenarios, digital projects, and digital profiles, students are able to critically and reflectively determine effective online information and media resources.

1. Introduction

The majority of American families live in homes continually connected to the outside world through high speed Internet access, mobile phones, computer games, and digital and satellite television, all offering non-stop, on-screen interaction [8]. Through text, photos, videos, social media, events, and artwork, the Internet and new media communication technologies have demonstrated the unique ability to transform an individual’s habits, behaviors, and relationships [16]. From almost the age of infancy, children are provided with digital resources touted to encourage physical and emotional growth, mental development, and imaginative play and creativity. Students in K-12 and in higher education now more than ever have access to online research articles, websites, and other digital resources.

Still, access to technology does not equate to appropriate or effective utilization of technology, meaning not all individuals who have contact with technology are able to demonstrate digital literacy [4,8]. Digital literacy is also more than simply an ability to use computers or an aptitude to conduct online searches [3]. While the basics of using Internet browsers and search engines is vital, digital literacy should not be restricted to simply information retrieval.

2. Definitions of Digital Literacy

Research indicates a plethora of definitions and frameworks for the term digital literacy [1, 5, 8, 9, 12]. Digital literacy involves the ability to implement successful digital actions needed in everyday life including work, learning, and leisure situations [12]. Martin states that “digital literacy is the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process” (pp. 135-136). Martin also explains that digital literacy is an “ongoing lifelong process developing as the individual’s life situation evolves” (p. 135).

Greene, Yu, and Copeland [5] “argue that the two critical aspects of digital literacy are the ability to effectively plan and monitor the efficacy of strategies used to search and manage the wealth of information available online, and the knowledge to appropriately vet and integrate those information sources” (p. 55). Individuals who are digitally literate demonstrate skills beyond simply being technologically proficient [9]. Hague and Payton [6] theorized that “to be digitally literate is to have access to a broad range of practices and cultural resources that you are able to apply to digital tools. It is the ability to make and share meaning in different modes and formats; to create, collaborate and communicate effectively and to understand how and when digital technologies can best be used to support these processes” (p. 2).

3. Current Problem

Successful participation in modern culture necessitates individuals to not only consume messages but also to create and share them. Members of society must utilize technology in order to search and apply for jobs in the workforce, benefit from online education programs, accurately evaluate and utilize medical and health information, participate in social activities, and maintain both professional and personal relationships
The rapid progression and integration of information and communication technologies (ICTs) into all scopes of life has created a society that requires its citizens to utilize these technologies in order to take an active role in the economic, social, and cultural components of everyday life [14].

4. Digital Literacy in Education

Research assignments utilizing the Internet are standard in most on-ground and online university classrooms. Still, despite the speed and ease of accessing online resources, students still often inadequately filter, decipher, and analyze the type of information they encounter [3]. The utter volume of information found online can overwhelm learners in the search process. In addition, students often do not engage in a purposeful approach to searching and locating material [5].

Digital literacy is a vital skill that educators need to develop in their students beyond simply encouraging the use of various media sources in schools. Instead, educators need to teach students methods of understanding these sources, not simply as technology, but as cultural forms [4]. While these skills need to be developed in informal settings, it is essential that both K-12 and higher education institutions develop programing and curriculum that teaches digital literacy to their students. The inclusion of media and digital literacy in formal education serves to motivate students to develop learning connections across content areas, bridge digital and cultural divides, and provides a means for creating greater equal opportunities in digital environments [8]. In order to connect to their learning, students must “engage in cognitively complex tasks involving such actives as problem solving, critical thinking, collaboration, and self-regulation” [14, p. 27]. The following sections provide an overview of diverse activities that educators can use at all levels of education to promote digital literacy skills.

4.1. Question and evaluate sources. Most students are able to easily search online for a response to a question or to obtain information based on an area of interest. However, students need to be taught how to go beyond simply “Googling” for information to better discerning the credibility of resources. The ability to evaluate resources is not a new phenomenon observed in educational settings. However, as conveyed by Mandalios [11], current learners are posed with the challenge of having access to large volumes of free, readily available information that may be unregulated or uncontrolled. Mandalios recommended teaching students digital literacy skills through the RADAR technique in which they are instructed to locate sources that include: 1) relevancy to assignment, 2) authority and respectability of author, 3) date of publication, 4) appearance of materials, and 5) the reason the paper, website, etc. was published.

4.1.2. Mindful reading. Educators are also able to modify their current classroom activities and assignments to incorporate opportunities for students to decode digital media. For example, de Veer and France [17] suggested that prior to showing a video the instructor should ask students questions in which they are required to identify the genre, audience, motive, bias, and intention. Student led discussions focused on media can also focus on comparing the pros and cons of video, printed materials, or other forms of digital technologies. Through these discussions, students are able to critically examine the impacts of different forms of media and share their thoughts and emotional reactions to each of them.

4.1.3. Problem-solving skills. To solve problems in a technology-enhanced environment, students must be able to analyze materials in order to find a solution, establish appropriate goals, monitor their progress, adapt to barriers, and persist until a resolution fails or is reached [7]. One way to enhance students’ problem-solving skills through digital literacy curriculum is through the use of scenario activities. For instance, the Literacy Information and Communication System [10] recommended having students create directions through the use of Google maps in which they are able to provide someone instructions to a specific location. By completing these types of activities, students are required to critically examine and analyze content and synthesize it into meaningful information.

4.1.4. Digital projects. Students also need the opportunity to create in order for them to develop digital literacy skills. One way instructors can modify assignments to be inclusive of digital components is by requiring students to generate digital stories. Through these types of activities, students can be instructed to create a video presentation that includes a scripted overview. Project-based activities can also be an effective way to engage students in newly taught concepts. Particularly, project-based learning includes student, which can result in active learning, and collaborative learning experiences [2].

4.1.5. Digital profiles. The creation and evaluation of digital profiles is another effective activity that instructors can incorporate into their curriculum. Through this activity, students are able to share and view the profiles of different individuals in order to ascertain what types of information is easily accessible. Students are able to gain an understanding of the concept of a “digital footprint” and that others are often
able to easily access the information that they share online is often easily accessed by others. Specifically, students are able to analyze critically analyze the various types of information that others may have access to and why and how this information may be beneficial or harmful. Secker, Karnad, Bell, Wilkinson, & Provencher [15] discovered that students who completed digital footprint workshops were more likely to take immediate steps to improve their online presence.

4.1.6. Collaborative learning experiences. By providing students collaborative learning experiences, they are also provided the opportunity to evaluate, analyze, and identify possible resources and sources of information that are appropriate to their course assignments. These types of learning activities could include the creation of a customized classroom: 1) Google search engine, 2) Pinterest page, or 3) notes page (e.g., wiki, blog, website, etc.). To further enhance students’ critical thinking about appropriate online resources, instructors could include fake sources and/or materials that are not considered credible or appropriate to the context of the class. However, Zheng, Niiya, & Warschauer [18] cautioned that these types of activities must be carefully constructed through appropriate pedagogical supports in order to be effective.

5. Implications to Teaching and Learning

Conclusion

Shopova [16] expressed the importance of teachers providing students more robust opportunities focused on digital literacy to ensure that they develop “a wide range of skills for searching, identification, critical evaluation and use of information for a more independent and creative behavior in the digital environment” (p. 31). Providing students opportunities to gain digital literacy skills at a young age is essentially in them gaining foundational skills that they are able to utilize and enhance at all levels of education. However, in order to convert digital information into knowledge, individuals need to demonstrate an aptitude to critically evaluate and analyze the material, including questioning the sources of the information, evaluating the interests and goals of the producers of the information, and assessing what the information represents in a greater social, political, or economic context [4].

6. References


Session 45:  Global Issues in Education and Research

Title: The Challenges Surrounding Classroom Diversity at Japanese Universities: Finding Common Ground through a Community of Practice
(Author: Keith C. Hoy)

Title: Effect of Psychological Resilience on the Self Esteem of Teacher Trainees
(Author: Suman Deep Kaur)

Title: The Effect of Parental Enforcement, Society Requirements and Role of Text Book on Students’ Interest towards the course of Chemistry
(Authors: Tayyaba Muhammad Akram, Aisha Sami, Anam Ilyas, Hamid Ikram)
The Challenges Surrounding Classroom Diversity at Japanese Universities: Finding Common Ground through a Community of Practice

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Abstract

In many English as a Medium of Instruction (EMI) content based university courses in Japan, there are power dynamics in play with high-status individuals, namely native language speakers (L1) and proficient second language speakers (L2) at the top, and Japanese L2 speakers at the bottom. The question is: how do we achieve a more egalitarian and participatory environment in which a low-status speaker feels not only less intimidated by other L2 interlocutors, but also less constrained by native-speaking (NS) norms and values? To answer this question, this presentation will examine a case study of an EMI course offered at a private university in Hiroshima. In particular, it will focus on the pedagogic strategies and practices the instructor at this university used to create a Community of Practice (COP) in which the Japanese students clearly benefited due to a greater emphasis on inclusion, accommodation and participation that was practiced by all members (including the L1 and proficient L2 speakers from other countries) within this classroom. Data collection was based on the participant's quantitative and qualitative feedback from their performances in their group discussions, as well as informal student interviews and personal insights from the instructor.

1. Scope

Since 2009, the government of Japan has pursued an educational policy encouraging foreign students to study at Japanese universities. One way to attract these students is to offer content based, undergraduate and graduate level courses in which English is the Medium of Instruction (EMI). In many of these classes there are power dynamics in play with high-status individuals, namely native speakers of English (L1) and proficient second language speakers (L2) at the top, and Japanese L2 speakers—which comprise the majority—at the bottom. This power imbalance is particularly evident in classroom activities involving group discussions and presentations. The question is: how do we achieve a more egalitarian and participatory environment in which a low-status speaker feels not only less intimidated by other L2 interlocutors, but also less constrained by native speaking (NS) norms and values? To answer this question, the session speaker will present a case study of an EMI course offered at a private university in Hiroshima. In particular, it will focus on the pedagogic strategies and practices the instructor at this university used to create a Community of Practice (COP) in which mutual engagement, joint negotiations and shared experiences and expertise were goals which all members could achieve. There were 18 participants in this case study: 11 Japanese, 4 L1 speakers (2 Americans and 2 New Zealanders) and 1 Chinese, French and South Korean. Data collection was based on the participant’s quantitative and qualitative feedback of their performance in their group discussions. Additional analysis came from informal interviews from the students as well as personal insights from the instructor. The results from this data revealed that although power still rested with the NS students, there was evidence that accommodations were being practiced by all participants thus creating a more harmonious and convivial COP.

2. Objective and Motivation

As a professor in a newly created Global Studies program in Japan, I am part of a nationwide movement for many universities to internationalize their programs in order to become more globally competitive. Internationalize, in this context means attracting foreign students and teaching faculty to study and teach content-related courses in English. In addition, one of the main attractions of having a global program is that Japanese students can also join these courses providing they have the requisite language skills. Although admissions into these courses vary according to each institution, one fact is clear: many of the Japanese students have a difficult time interacting in a diverse classroom of native language speakers (L1) and more proficient second language speakers (L2) of English. The main reason for these difficulties is that Japanese students identify themselves as language learners, not language users. Moreover, they feel constrained because of their need to adhere to native speaking norms and values. Therefore, a lot of the current debate and research amongst global educators in Japan has focused on creating Communities of Practice (Lave and Wenger, 1991) where all students—both foreign and Japanese—can learn to communicate successfully through
mutual engagement, joint negotiations and shared experiences.
Effect of Psychological Resilience on the Self Esteem of Teacher Trainees

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Abstract

The most pertinent question that arises in the present scenario is whether our teacher’s trainees are indeed well equipped to handle the pressures and challenges of their venerable profession. Psychological resilience can be viewed as the phenomenon of recovery from a prolonged or severe adversity, or from an immediate danger or stress; people who experience acute trauma, for example, may show extreme anxiety, sleep problems, and intrusive thoughts. This realm of research paper shows that self-esteem and sex are the correlates of psychological resilience. Self-esteem is a concept that a person has regarding his own self which consists of any evaluation that he makes of himself or whatever feelings he has about himself. Chaudhri [3] found positive change of attitude towards female education and co-education and female employment was reflected in her study. There is general agreement that there is a close relationship between self-esteem and academic achievement. It is found that there is positive correlation between Psychological Resilience and self esteem of teacher trainees (male and female). There is insignificant difference in the self-esteem of male and female teacher trainees on the basis of Psychological Resilience.

1. Introduction

People with internal locus of control are expected to be well adjusting in life as compared people with external of control, JMCCombs [6]. Internals tend to have high self-esteem and high level of assertiveness as compared to externals. Thakar, R. [11] found that there was a significant positive effect of different micro teaching skills upon GTC of primary teacher trainees admeasured by the GTC SCALE. People who in experience a cute trauma, may show extreme anxiety, sleep problems and instructive thoughts. A psychological resilience can be viewed as the phenomenon of recovery from “a prolonged or severe adversity. The realm of research shows that psychological resilience affects the self-esteem of the individuals. The investigator want to see whether the psychological resilience of a person helps him/her to enhance self esteem of teacher trainees.

2. Delimitations of the problem

1. Only male and female teacher’s trainees were taken in the study.
2. Only male and female teacher’s trainees of Kurukshetra were taken.

2.1. Objectives of the study

1. To study the relationship between Psychological Resilience and Self-Esteem in teachers trainee (male-female) of Kurukshetra.
2. To study the effect of Psychological Resilience on the self-esteem of teacher trainees (male-female) of Kurukshetra.
3. To study the difference between the Psychological Resilience of male and female teachers trainees.
4. To study the difference between the self-esteem of male and female teachers trainees.
5. To study the difference in the effect of Psychological Resilience on self-esteem of male and female teachers trainees.

2.2. Hypothesis

1. There will not be any difference in the self esteem of male and female teacher trainees of Kurukshetra.
2. There will not be any difference in the Psychological Resilience of male and female teacher trainees of Kurukshetra.
3. There will not be any relationship between Psychological Resilience and self esteem in male and female teacher trainees of Kurukshetra.
4. There will not be any difference in the self esteem of male and female teacher trainees of Kurukshetra on the basis of Psychological Resilience
5. There will not be any effect of Psychological Resilience on the self esteem of male and female teacher’s trainees of Kurukshetra.

2.3. Research Tools

1. Self-esteem Inventory [5]
2. Psychological Resilience Scale [10]

2.4. Sample

Total sample is of 160 male and female teachers trainees were randomly selected from 4B.Ed.
colleges of Kurukshetra. There were 80 male and 80 female teacher trainees.

3. Statistical techniques

1. Mean, Standard Deviation was calculated.
2. Co-relation, t-values was computed.

4. Analysis and interpretation of data

After scoring, different groups were formed on the basis of sex. Mean & Standard Deviation of both Self-Esteem & Psychological Resilience were computed, which is shown in table 1. After that correlation of both variables were computed.

<table>
<thead>
<tr>
<th>Psychological Resilience</th>
<th>Mean</th>
<th>S.D.</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Esteem</td>
<td>64.43</td>
<td>2.49</td>
<td>-0.091*</td>
</tr>
<tr>
<td>Mean</td>
<td>64.62</td>
<td>S.D. 3.47</td>
<td>0.091*</td>
</tr>
</tbody>
</table>

Table 1 shows that there is positive relation in both the variables but not significant.

4.1. Effect of psychological resilience on self esteem of teachers trainees

Mean & Standard Deviation of both (male & female) groups of both variables were computed separately. And then to find the effect of Psychological Resilience on the self-esteem of the pupil teacher t-values of both groups were computed which are shown in table 2.

<table>
<thead>
<tr>
<th>Psychological Resilience</th>
<th>Self esteem</th>
<th>t-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Group</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>Males</td>
<td>64.12</td>
<td>3.48</td>
</tr>
<tr>
<td>Females</td>
<td>64.09</td>
<td>3.47</td>
</tr>
<tr>
<td>Low Group</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>Males</td>
<td>66.10</td>
<td>3.44</td>
</tr>
<tr>
<td>Females</td>
<td>66.90</td>
<td>3.46</td>
</tr>
</tbody>
</table>

Table 2. Effect on self esteem of pupil teacher t-values

**insignificant at 0.05

**insignificant at 0.05 level

4.2. Interpretation

In table-values show that Psychological Resilience has no effect on the self esteem of Teacher trainees but the mean scores of males and females show that female teacher trainees have better self-esteem than male teacher trainees in case of high Psychological Resilience but both sexes don't differ significantly in low group of Psychological Resilience. It is clearly shown through graph.

5. Conclusion

1. There is positive correlation between Psychological Resilience and self esteem of teacher trainees (male and female).
2. There is insignificant difference in the self-esteem of male and female teacher trainees on the basis of Psychological Resilience.
3. There is insignificant effect of Psychological Resilience on self-esteem of male and female teacher.
4. There is insignificant difference in the self-esteem of male and female teacher trainees.
5. There is insignificant difference in the Psychological Resilience of male and female teacher trainees.

6. References


The Effect of Parental Enforcement, Society Requirements and Role of Text Book on Students’ Interest towards the course of Chemistry

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Abstract

In science education interest is a key factor. This study was conducted to explore the factors responsible in decaying the students’ interest towards chemistry. Three factors (parental enforcement, society requirements and role of text book) play significant role and contribute in students’ interest towards Chemistry. Demographic variables i.e., school sectors, parental occupation; father occupations and mother occupation were brought under investigation. Questionnaire was developed, validated and reliability was determined. Five point Likert Scale was used to get perception of 600(male and female) 9th and 10th grade students of different school sectors of Lahore. Data analyzed and interpreted by mean values, t- test and one- way ANOVA. Among all three factors, over all perception of students related to “role of text books” with lowest value of mean value showed main cause of decline of interest towards course of Chemistry. This study will be helpful for students, parents, teachers, administrators and policy makers in recognizing and eliminating such factors which are responsible for frightening situation. This study looked forward towards better future of chemistry in Pakistan.

1. Introduction

Science is considered as an interesting subject in general and interest is a major component in the area of science education [1]. Interest in science get new life in science educational societies from last few years’ [2], [1]. Prior studies claimed that trend of choosing science subjects declined in young [3]. According to researchers [4] investigation, Chemistry acts as receptionist for higher study in many sciences. Chemistry literacy is vital because of its immense value in the life of an individual as well as in society. It is evident from literature that students’ interest getting declined towards the discipline of chemistry [5] [6] [7] [8] [9] [1] [10] [11] [12] [3] [13]. Number of scientists reduced all over the world along with it their unsatisfied performance of chemistry students represents an alarming situation [3]. 21st century is predicted for rebuild students’ interest in science particularly in chemistry. Likewise, the Pakistani curriculum documents also strongly emphasized to develop students’ interest as ambition National Curriculum of Chemistry at IX- X Grades [14].

Numerous studies declared several factors responsible for declining the students’ interest towards science subjects. These factors may include academic records [15], curriculum [16], type of school, parental occupation [17], socio-economic status and prior learning experiences [18]. In this study, factors such as, “Parental Enforcement”, “Society Requirements” and “Role of Text Books” that could be responsible for the declining interest of Pakistani students are discussed.

2. Research Rationale

2.1. Parental enforcement

Parents’ encouragement, cooperation, support and responsibilities significantly influenced on child’s interest and good achievement in studies [19], [20]. PISA studies revealed that those students who live with their parents, show better achievement scores [21] [20]. Parent occupation also participate on children success according to PISA findings [20]. Furthermore, outcomes of the study show that students attained significantly healthier scores whose parents are associate with managerial or professional occupations, compared to others.

2.2. Society Requirements

Learning for chemists associated with its implication for societal benefits [6]. In the opinion of researchers [16], youth detachment and dissatisfaction from the science create gaps between science and society. In result of this distances scientific and moral dilemmas arose such as greenhouse effect, global warming, variations in the genetic makeup of food items, confront society [16]. As researchers [22] reported that student who studied STS (Science- Technology- Society) courses proved
the evidence of their better attitude for society by implications, manipulations and interactions of chemistry and environment. Investigators like Jong, [9] mentioned the plan for improving the curriculum of chemical education, from current society and other issues. Scientists [16] revealed their thoughts that scientific matters must be discussed in media. A view given by researcher [6], is that inside the school and its outer world chemistry learning must be linked and exercise in actual situation. Doctor Aikenhead defined that each sort of significance for school science is directed by different ideologies of education, science and society [5].

2.3. Role of Text Books

Science curriculum connects students’ interest and worldly experiences produce optimistic attitude in school science students [3]. Science students considered the chemistry course in both dimensions, easy as well as difficult [13]. Application of curriculum probably placed encouraging effect on student behaviors and beliefs for the importance of chemistry [6]. [12] discussed that there is indirect correlation exists between students’ perception about the difficulty of a topic and their low academic achievement based on school category attending by them. Over loaded curriculum frustrates the students and before final evaluation, shortage of time for book revision, chemistry practical performance and science discussions troubled them [23] [7] [16]. Insufficient laboratory apparatus’s, don’t allow students to perform individual practical work with confident [24]. Scholars examined to explore the details about linkage of daily life examples of chemistry due to its abstract nature [6] [12] [16] [24]. Previous investigations propose to change the chemistry concepts from abstract to concrete by practice of A.V aids and I.T techniques in the chemistry curriculum for better scores achievement by developing interest [25] [26] [12]. Intellectuals discovered the effects of an integrated video media curriculum enrichment on students’ success as well as attitude in which interest lies [25]. According to research [6] boys’ behavior about chemistry theory lessons also declined as they progressed in grade levels. Previous intellectuals such as Peter Kutnick detect that girls achieved high average scores in each subject of Science, Mathematics, English, Social Studies etc. as compared to boys. This leading of girls remained consistent throughout the year [19] [20].

Students’ interest towards Chemistry declined all over the world which is clear evident from previous researches. Following investigation is conducted by taking three major factors; “Parental enforcement”, “Society requirements” and “Role of text book”. This research aimed at assessing of students’ interest towards Chemistry and the exploring the factors which are actually responsible for this deteriorating. It will be helpful for students, parents, teachers, administrators and policy makers in recognizing and eliminating such factors which are truly liable for this frightening situation. That research is probably looked forward to the bright future of Chemistry in Pakistan. Therefore, the objectives of the study are, to:

1. Comparative Analysis between the major factors, “Parental enforcement”, “Society requirements” and “Role of text book” for assessing the students’ interest towards Chemistry.
2. Evaluate the influence of demographic variables (School sector, Parental occupation and Marks achievement) on major factors (Parental enforcement, Society requirements and Role of text book) for measuring the students’ interest towards Chemistry.

Under the light of above mentioned objectives, research questions are as follow:

1. Which major factor play its role in leading the students’ interest towards Chemistry?
2. Which major factor play its role in declining the students’ interest towards Chemistry?
3. What influence of demographic variables puts on major factors for students’ interest towards Chemistry?

3. Methodology

Aim of this study signifying for quantitative approach, therefore following research falls under the causal-comparative research method. It attempts to determine the causes for existing variances in the individuals’ performance. To measuring the prevailing interest level of students towards Chemistry, gathering the numerical data according their views on different aspects.

Population for this enquiry includes the school students from different sectors, i.e., Government, Semi-government, and Private schools at secondary level of the Lahore city, comprise of male and female students. Only the students having Chemistry subject were part of the population (excluding O-levels Chemistry students). The stratified random

Figure 1. Sample division

Sampling technique was practiced as sample type. 600 (male and female) students were part of the
research sample from 9th and 10th grades. Their further categorization is given below in Figure 1.

A close ended questionnaire based on five-point Likert scale was the only instrument used to gather data from students. On experts’ opinion, valid

![Demographical Variables](image)

Figure 2. Demographic variables division

Questionnaire was developed and its reliability was ensured via pilot testing. Questionnaire was divided in two major sections, i.e. demographic variables section and major factors along with their relevant statements. Demographic variables further branched into school sector, parental occupation and marks achievement of student. These branches split moreover into categories shown in Figure 2.

4. Findings

Major findings in the light of research questions to achieve objectives of the study, are represents in Figure 3.

![Findings of the research](image)

Figure 3. Findings of the research

According to the mean values, major factor Society requirement shows highest means value 3.60 (1.21 S.D.), itself as well as with demographic factors. Government schools (Mean= 3.64, 1.10 S.D.) from the category of school sector and Girls in the group of 71-80 % Marks Achievement shows mean value 3.86 (1.06 S.D.). From the Parental occupation, mother as working women (Mean= 3.73, 1.16, S.D.) also belong to the major factor Society requirements but Fathers Occupation as Technical/ Vocational Services indicates highest 3.73 mean value (1.09 S.D.) arises only from the major factor Parental enforcement (Mean= 3.36, 1.30 S.D.).

As far as lowest mean values are concerned, mentioned at right hand side values from the figure 3. Major factor Role of textbook having 3.17 mean values (1.32 S.D.), along with all others demographic variables Govt. schools (Mean = 3.15, 1.22 S.D.) from School Sector, Teacher/ Engineer/ Doctor (Mean = 3.09, 1.41 S.D.) through Fathers Occupation, and House Wife from Mothers Occupation (Mean = 3.17, 1.33 S.D.) category. Boys also from the same major factor Role of textbook; Marks Achievement 81-90% grouped students depicts lowest mean value as 2.95 (1.40 S.D.).

5. Results

The students are curious about the Chemistry. But the findings represent that the students’ interest towards chemistry is not so much high. In comparison between all three factors, (Parental enforcement, Society requirements and Role of textbook) the factor Role of textbook designates all the declined outcomes. These results remained consistent throughout the comparison. Mean and Standard Deviation (S.D.) responses, with other demographic variables such as school sectors (Govt., Semi-govt., and Private), Parental occupation (Govt. Jobs, Private Jobs, Business, Technical Vocational Services and Teacher/ Doctor/ Engineer) by father occupations or House Wives or Working Women from the category of mother occupations, remained uniform. While, concentrated mean value is attained by the factor Society requirements and lowest by the factor Role of textbook in terms of Mean and Standard Deviation which are evident what conclude earlier.

In the comparison between school sectors, the government school sectors have both extremes. If it is concerned for highest mean values, same sector achieved high mean and standard deviation scores for the factor Society requirements and for lowest mean values again Govt. school sector is contributing for the factor Role of textbook. From Parental occupations, in the category of Mother Occupation, the factor Society requirements is again leading with its high mean values for the Working Women, and the factor Role of textbook is again leading with its high mean values for the Working Women, and the factor Role of textbook show minimum values for the House Wives. One more thing is evidenced that students having their fathers in Technical Vocational Services indicates their more interest towards Chemistry by the factor Parental enforcement while fathers have their profession in the field of Teacher, Engineer, or Doctor, their children are least interested towards Chemistry by the factor Role of textbook. In the category of scores achievement, Girls lead. In the factor Society requirements, female students having their Marks Achievement in the range of 71-80%, represents the highest mean values while Boys from
the factor *Role of textbook* reveals the minimum value of mean scores in the group of 81- 90% achievement scores.

In further deep analysis, after applying t-test and One-Way ANOVA to all factors one by one, from the factor *Parental enforcement* to all factors demonstrates the significant difference with other school sectors as Semi-govt. and Private schools. Technical and Vocational Services (T/V) of father occupation illustrates significant mean difference with Govt. Jobs, Private Jobs, Business and T/E/D (Teacher/Engineer/Doctor) by the factor *Parental enforcement*. And 81- 90% Marks Achievement scores illuminate significant mean difference with 61- 70% Marks and 71-80% Marks Achievement range. From the factor *Society requirements*, Marks Achievement ≥ 91% with ≤ 60 % range demonstrate significant mean difference, and from the factor *Role of textbook* this difference explores within the range of ≥ 91% with 81- 90% Marks achievement.

6. Discussion

In the science educational societies, the concept of interest has warmly discussed [2]-[1]. The students convey their concerns as their secondary science starts [1]. These concerns support them in rising their interest towards the science subjects [27]. The delay or lack for acquisition the curiosity requisites to students towards the science subjects may leads to the decline in interest [16]. It is an evident that students’ interest is decline in various countries throughout the globe [5] [6] [7] [8] [9] [11] [28] [11] [12] [3] [13]. The current study indicates that female students have leading interest in Chemistry than male. These findings are aligned with the research of Ogunkola and Samuel [12]. The students’ interest towards Chemistry declines as a pattern of school sectors moving from Government to Semi-government schools and further towards Private school sectors. Researchers testified that school students who considered Chemistry less difficult subject those schools demonstrate better results [12]. The explanations possibly will be linked to the family income desires or the positive or negative influence of Parental Occupations. There is necessity to investigate the reasons behind these findings.

*Parental enforcement* is imposing a constructive effect on students’ interest towards Chemistry. Scholars [29] argued that more parents influence, most the enrolment of students. The social impact is also important and helpful for development of interest towards Chemistry. Many scientists reported that the role of society is crucial for the interest construction [3]. The science not only influence the society but the society also play role in determining the students interest towards or away from science learning and understanding. The content in Chemistry books is failed to develop a true scientific attitude in students. Curriculum applications unable to modify the beliefs of students on behalf of the importance of Chemistry [6]. These results are contradictory with others [7] as indicated that students felt anxiety due to wide syllabus.

7. Conclusion

Among the different major factors, the *Society requirements* plays significant role for development of students’ interest towards Chemistry subject. On other hand the factor which is mainly responsible for declining the students’ interest towards learning Chemistry is the *Role of textbook*. Girls taking more interest in Chemistry learning as compare to boys. The Government schools produced students with dominant interest for Chemistry learning while the Private school students are least interested to learn Chemistry. Among different Father Occupations the children having their fathers committed with Technical/Vocational Services shows most concerned to learn Chemistry. The interest of the students towards Chemistry subject is advanced and dominating who could enable to catch 71- 80% Marks. However, the results are not consistent for rest of Marks Achievements. The Suggestions and Recommendations under the study for the future perspectives are as:

1. Career guidance must make a way towards international assessments (Like PISA and TIMMS) that contains in assessing the interest construction.
2. There is an ample room for curriculum and Text Books to be updated and more appealing for students to pull their interest back towards Chemistry.
3. Pedagogical techniques used in schools should be accurately and appropriately according to the need of students’ concept understanding i.e., application of Constructivist approaches aiding with other teaching skills.
4. There must be related seminars, debates and field trips for students’ encouragement and to enrich their interest and capabilities in Chemistry, to consider it valuable subject to meet the challenges of 21st century.
5. Aptitude tests must be conducted in educational institutions before upgrading the students in secondary classes, to assist them for selecting right subjects at right time.

8. References


Session 46: Curriculum, Research and Development

Title: The Role of the Kominkan System in Practicing ESD (Education for Sustainable Development) in Japan Since 2005 to Present Time (Case study: Kominkan system in Okayama City, Okayama Prefecture)
(Author: Nguyen Thi Phuong Hao)

Title: Challenges of Dual-Mode Universities: A Perspective of International Islamic University Islamabad Pakistan
(Authors: Nabi Bux Jumani, Fouzia Ajmal)

Title: Black Teachers Engaging Black Students through Culturally Responsive Pedagogy in Toronto Schools
(Author: Monique Power)
The Role of the Kominkan* System in Practicing ESD (Education for Sustainable Development) in Japan Since 2005 to Present Time
(Case study: Kominkan system in Okayama City, Okayama Prefecture)

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Abstract

Education for Sustainable Development (ESD) is a long-term and integrated project, which aims to construct the sustainable life for all people through education. ESD was endorsed by UNESCO since 2002, and has been implemented at the national level since 2005. “ESD” was defined by UNESCO as: “Education for Sustainable Development aims at developing competencies that empower individuals to reflect on their own actions, taking into account, their current and future social, cultural, economic and environment impacts, from a local and a global perspective. Individuals should also be empowered to act in complex situations in a sustainable manner, which may require them to strike out in new directions; and to participate in socio-political processes, moving their societies towards sustainable development” [1].

Japan is one of the pioneer nations in the world who adopted and implemented the ESD project. Thereafter, the Japanese government, at different levels of government, has made a lot of efforts to embed the ESD’s content into formal education, non-formal and informal education systems.

In Japan, Okayama is one of the first prefectures where the ESD project was deployed extensively, especially in Okayama City. The city government set out many initiatives to support ESD’s implementation. While schools are tasked with the official role of delivering formal knowledge of ESD to their students, the Kominkan system in Okayama has emerged as a critical player for transferring ESD instruction to the rest of the residents.

“Kominkan”, or Community Learning center was the specific educational facility of Japan, which emerged since the end of the Second World War. After the War, the Japanese Government, in addition to reconstructing formal education, conducted many other policies to expand and improve the informal and non-formal education. In that context, by Law, the Kominkan system (Community learning centers) was encouraged to be established across Japan [Social Education Act, Article 20, 21, 23].

The Kominkan system was formed “to conduct various project for the cause of education, science and culture, meeting the daily needs of the residents in municipalities and other specific areas to develop their attainments, improve their health, cultivate their sentiment, elevate their cultural life, and increase the social welfare of the community” [2].

In this paper, I describe the role of Kominkan system, or “Community Learning Centers”, in supporting for ESD’s implementation in Okayama city. At the same time, I try to highlight the new characters of the current Kominkan system and its efforts in reforming to meet the demands of the modern life. Additionally, I also indicate some remains and challenges of the Kominkan system with the hope to receive more suggestions for sustaining this educational facility in the future.
References


Challenges of Dual-Mode Universities: A Perspective of International Islamic University Islamabad Pakistan

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Abstract

Dual mode distance education universities differ from their single-purpose counterparts as these are not specifically established to offer programs in distance mode and it is added to them afterwards. The fundamental motivation behind distance and dual mode instruction is to give more access to substantial number of students within limited financial budget. Most distance education in Pakistan is delivered by institutions with a mission to offer same degree programs in both on and off campus students. Blended learning is considered as more successful teaching learning strategy as compared to just f2f and distance education. This environment is easily available in dual mode universities. International Islamic University Islamabad has also offered some academic degree programs through Directorate of Distance Education (blended learning approach) in 2015. The present study was undertaken to gather views of administration and teachers working in Directorate of Distance Education. Some of challenges are depicted in the previous studies also. Training and sustaining part-time personnel in distance and dual mode institutions is difficult due to their other responsibilities [11]. As a result of range of study programmes and courses the management team is not able to respond adequately to the diverse needs of distance students [4]. Data were collected through interviews. The data analysis done through thematic approach depicted that the key challenges of offering programs through distance mode included material development, instructional strategies, the difficulties in handling Learning Management system, Examination system, quality assurance and equivalence of degree with face to face degree programs, training of teachers and supporting staff etc.

1. Introduction

Commonly, in universities education programs have been offered in two forms: either a university offers only distance education programs or these are offered along with traditional face to face classroom teaching programs. Dual mode universities are those which offer both face to face and distance mode of programs [1]. Dual mode distance education universities differ from their single-purpose counterparts as these are not specifically established to offer programs in distance mode and it is added to them afterwards. The fundamental motivation behind distance and dual mode instruction is to give more access to substantial number of students within limited financial budget. Most distance education in Pakistan is delivered by institutions with a mission to offer same degree programs in both on and off campus students. Blended learning is considered as more successful teaching learning strategy as compared to just f2f and distance education. This environment is easily available in dual mode universities. International Islamic University Islamabad has also offered some academic degree programs through Directorate of Distance Education with blended approach in 2015. The purpose of establishment of Directorate of Distance Education was to provide access to higher education along with quality to the working or other learners who could not otherwise continue their studies due to certain reasons. The Directorate of Distance Education is the leading education directorate of Pakistan with exceptionally qualified faculty and staff, with cutting edge innovation, and research based practices to produce balanced, amicable instructive pioneers serving the nation, by giving education through dual method of instruction. Directorate of Distance Education, International Islamic University Islamabad had offered M.A., Education, M.A., Pakistan Studies and M.Ed Programs in Fall semester 2015. The directorate plans to offer short courses in different areas of study also.
2. Literature Review

Distance education has a fundamental part to play in taking care of the growing demand for higher education. The latest legitimate document on higher education in developing countries delivered by the World Bank and UNESCO Task Force on Higher Education and Society [15] says that Distance learning is an undeniably vital part of the advanced education framework, with its capacity to achieve students in remote zones and address the advanced education needs of adults. The Task Force trusts that distance instruction offers numerous energizing potential outcomes. Consolidating distance education, with its open and adaptable way to deal with instructing and learning, and traditional training, with its exploration and showing ability, can possibly incredibly advantage students and institutions [2].

Training and sustaining part-time personnel in distance and dual mode institutions is difficult due to their other responsibilities [11]. As a result of range of study programmes and courses the management team is not able to respond adequately to the diverse needs of distance students [4]. Challenging educators to accept new parts raises the issue of faculty development. Educators will confront another kind of students, one who expects direction outside of normal classes. Teachers will need to apply instructional innovations, grow new projects, and reevaluate educational program. So they need institutional support and strong motivation to cope up with the challenges of dual mode universities. They might need specific training also to cope up with the challenges. We should make new systems for conveyance and correspondence, and also for student support [10].

The dual mode universities are normally traditional campus-based universities offering open doors for distance learners to take the same courses as on-grounds learners and acquire the same capability, had critical upper hands as far as cost, decision of courses and learner comfort over the devoted distance learning supplier. Dual mode universities offer programs of concentrate either as distance or internal learning programs or both. More often than not, the educational modules for a system being offered in both modes are the same. In any case, the span for finishing the project might be a bit longer on the external or distance system than on the internal or face to face system. The same quality certification apportionments are dispensed on both programs. [12].

The challenge confronting all instruction suppliers in the 21st century is to address the issues of lifelong learners in the information age and distance education suppliers are extraordinarily situated to benefit the requirements of these learners [13]. The presentation of distance learning brought about extensive pressure between the individual society and the emerging role culture. The role culture of traditional distance learning implies that course material is conveyed in print, is along these lines accessible for associate investigation and typically arranged in a group domain. The group methodology is esteemed vital in light of the fact that there is nobody who can outline and convey the instructing/learning programs that are typified by separation training, proposing that maybe teachers. They must drop the self-importance of scholastic segregation inside this society [9].

As universities actualize outreach strategies aimed at differentiating conveyance of higher education to new and returning students, online learning is turned out to be a practical method for achieving students both off and on campus [3]. So many of the universities in the world are shifting towards dual mode which offer both on and off campus courses [14]. Different colleges, in endeavoring to smooth the move for faculty from on-grounds to web educating while additionally attempting to lessen the restrictive expense of high level instructional outline, have to actualize activities whereby innovation moves to workforce. This methodology has the benefit of furnishing staff with a feeling of congruity in their showing hone, as described by oral presentation and unconstrained cooperation with students [8].

Croft [5] distinguished four conditions that would ensure effective usage of distance education in a dual mode universities including that it ought to be a regulatory unit with some level of power, have collaboration from different units, have a very much prepared staff and sound funding.

The quality and notoriety of distance education in dual mode universities has been guaranteed by the improvement of a coordinated structure in which courses are arranged, created and taught by the same scholastic staff to students who can get an indistinguishable qualification whether they are studying on or off campus. Special resources are provided to distance education and deliberate support is provided to accommodate all parts of the distance students' engagement with the organization [7].
3. Research Methodology

It was a qualitative study. Narrative method was used that focuses on the lives of individuals as told through their own stories. Narrative methods can be considered real world measures that are appropriate when real life problems are investigated. [6]. The sample of study included all 17 teachers who were teaching course in various programs offered through Directorate of Distance Education, International Islamic University Islamabad. The academic leadership is also held by the senior faculty members out of these who are taking courses. Data were collected through interviews. The interviews which were the narration of their experiences and challenges in dual mode university were held according to the convenience and availability of the sample. The interviews were recorded and then transcribed for analysis. The data analysis was done through thematic approach. The problems and issues were highlighted in the interviews which may be used by the authorities for improving the practices at Directorate of Distance Education. These finding provide the guideline for the important but neglected areas which need consideration on part of faculty and administration.

4. Results of the Study

The following themes emerged from analysis of data:

![Diagram of Challenges]

Figure 1. Challenges identified by faculty members about dual mode education

5. Material Development

One important task which is specific to distance education is material development for the learners. The students are expected to be self-directed learners in distance mode and study/course material is provided to them for independent study also. The faculty members of both departments i.e History and Pakistan Studies and Department of Education, International Islamic University were of the view that the material development for the students was a challenging task. As the entire faculty members are taking courses (their full workload) in regular face to face programs also, so it became difficult for them to prepare course material according to the demands and requirements of distance learners. The content of advance level along with specified explanations and more examples was a heavy task for the faculty members. Maintaining the quality of material and choosing the best book/chapters for the students according to course objectives was an additional task to be performed while working with distance learners.

6. Instructional Methods

Educators will confront another kind of students, one who expects direction outside of normal classes. Teachers will need to apply instructional innovations, grow new projects, and reevaluate educational program. In dual mode university and tackling with students of both face to face and distance learners, choosing the best instructional methods for distance learners was a problem for the faculty members. They had to take a few classes of distance learners on-campus, a few through skype and had to maintain interaction by using Learning Management System. The distance learners had their own unique characteristics; most of them were doing jobs in different organizations. Interaction with them according to a mutual settled time between the faculty and students was a bit tough to manage.

7. Working with Learning Management System

The faculty members were supposed to upload the reading material, hold discussions, give assignments and have interaction with students of distance mode through Learning Management System. They were provided specified training sessions on working with Learning Management System. As it was a unique experience, so they felt it a bit difficult in the beginning. They were of the view that the system didn’t look user friendly to them in the beginning, but
as they explored it they got used to it and found it beneficial.

8. Time Management

According to faculty members responses time management in tackling the courses in dual mode was a challenge for them. They had to take the classes on weekend but had to give consultancy, upload materials and assignments on LMS, have discussion with the students and evaluate their work along with heavy burden of teaching and other works in university. As being an instructor in distance education courses does not include just conveying the knowledge as the learners are mature and have unique characteristics. In the event that exhibited legitimately, this ought to be positive ordeals as it will the teacher to invest more energy really discussing specifically with individual students and critical thinking.

9. Training of faculty and staff

The distance education demands specific skills and dispositions on the part of faculty members. They need to know and guide students what is expected of them, what the distance learning is, and how to succeed in distance learning. The faculty members were of the view that there is a need of training on instructional dealing of distance learners, instructive innovation, assessment and student support. The administration was of the view that in dealing with administrative matters, the staff needs more guidance and training.

10. Examination System

One of the important challenges identified by the faculty members is examination pattern of distance education. As the face to face classes are less in number and holding exams in limited time period like 2 to 3 tests per day and 2 papers in a day is a problem for students. They are unable to concentrate properly on one subject and it affects on their academic performance in all subjects.

11. Quality Assurance

Quality in distance education includes that the students gain meaningful learning experiences and are able to utilize their knowledge, skills and dispositions in the same and similar situations. The administrative member of Directorate of Distance Education exclaimed that while distance education programs are providing access to the many students who could not for one or the other reason complete/continue their education in formal system, one of the important challenges is maintaining quality. The quality mechanism of distance education is not very clearly defined and it has to be different than the quality assurance of face to face education. There is need to adopt quality assurance mechanism and institutional support is required in this regard.

12. Equivalence of degree with face to face degree programs

When any course or program is offered in two different modes there is issue of equivalence. The scheme of studies of both face to face and distance mode of education are same in all programs. The same credit hours and courses are followed in both modes of education. So the degrees are considered equal. But usually when students will go to job market, they may face problem there. It is a general understanding that proper skills and dispositions are or could not be developed through distance mode of education. The faculty members were of the view that students have this query in their classes that will their degree be equal to the degree offered through face to face instructional mode. Satisfying the students and prospective job market holders is an important issue for the administration.

13. Recommendations

The study recommends that for smooth functioning of any university dealing with education in dual mode, equal importance may be given to distance education as well. The facilities of labs, infrastructure and training of faculty and staff may be provided. There may be more support in handling Learning Management System may be provided. More guidance regarding examination system of distance education may be provided. The mechanism of quality assurance of distance mode may be formulated and implemented. There has to be equivalence of degree with face to face degree programs so that after completion of degree students may not suffer in job market.

14. References:


Black Teachers Engaging Black Students through Culturally Responsive Pedagogy in Toronto Schools

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Abstract

This paper reports on a study exploring the experiences of Black high school educators in Toronto who employ culturally responsive pedagogy (CRP) in classroom settings as means to engage Black students. In-depth, semi-structured interviews were conducted with four Black Toronto teachers. Interviews were recorded, transcribed and analyzed using an inductive approach. Findings revealed that educators characterized Black student engagement in ways that differed from general definitions of engagement and maintaining high standards proved to be rather difficult as educators experienced resistance from Black students. This research has implications for the identification of ways to achieve Black student engagement using CRP without compromising the central objectives of culturally responsive educators.

1. Introduction

The underachievement of Black high school students has become a focal point of educational research in North America over many years. These students have been said to lack engagement in a variety of core subjects which, has led to disproportionate dropout rates amongst this group. Research suggests that teachers who employ culturally responsive teaching methods and strategies could yield a greater engagement from Black students. Given the nature of culturally responsive pedagogy (CRP), the expectation has become that it is most effectively executed by Black teachers who have the most familiarity and appreciation for Black culture and the barriers faced by these students each day. This study sets out to identify the experiences of Black teachers who intentionally use CRP as a vehicle to improve the engagement and learning outcomes of Black students.

2. Research Background and Objectives

As Canada’s third largest minority group, the Black community is also one of the fastest growing [1]. With majority of the Black Canadian population taking up residence in the greater Toronto area, these proportions are mirrored in Toronto Schools [2]. Black students tend to, not only struggle academically but, they are unfortunately impacted by suspensions and expulsions at disproportionate rates at the high school level [3, 4]. In the past, these students have expressed that the Canadian school system is oppressive and one where they are left feeling alienated. Engagement in a spectrum of disciplines is absent in Black students and they are often led down an accelerated path to dropping out [3]. Much of the literature around effective teaching strategies to improve the engagement and academic success of Black students points to CRP with little to no evidence to support it [5], [6], [7]. Although, it has been proposed that Black teachers are the most effective users of CRP [8], very little research has been done to explore the experiences and purposeful use of those who do, let alone, in a Canadian context.

The purpose of this qualitative study, is to gain insights into the experiences and challenges faced by Black culturally responsive educators in Ontario, and their perceptions on changes in the level of Black student engagement during culturally responsive lessons. This will allow for a deeper understanding of CRP in the context of Black youth, and for culturally responsive educators to appropriately adjust expectations around Black student engagement. In order to fully understand the perspectives and practices of participants, a culturally responsive pedagogy theoretical framework was used. In addition to this, the central research question guiding this inquiry was: how are Black high school teachers in Toronto currently using culturally responsive teaching strategies to engage Black students?

3. Culturally Responsive Pedagogy

In her study of African American students, Gloria Ladson-Billings coined the term “culturally relevant pedagogy” as an effective pedagogy when working with Black students [7]. She defined culturally relevant pedagogy as one that “empowers students intellectually, socially, emotionally, and politically by using cultural and historical referents to convey knowledge, to impart skills, and to change attitudes”
More Recently, Geneva Gay expanded on the traditional views of culturally relevant pedagogy by proposing that a pedagogy sensitive to students cultural and social backgrounds as a medium in which they learn through, will help to foster better student-teacher relationships and understanding of course material [6]. Gay referred to this pedagogical approach as culturally responsive pedagogy and this is the pedagogical approach I will be exploring.

In practice, teachers who employ culturally responsive teaching in the classroom have been found to have a specific set of identifiable characteristics [9]. Educators who are culturally responsive focus on the academic achievement of individual students while remaining explicit in regards to goals and use multiple forms of assessment [9]. It has been found that culturally relevant teachers set high expectations and genuinely believe in the ability of their students. They are also said to foster a classroom climate conducive to active learning in which high self-esteem is encouraged [6], [7], [10]. These teachers typically submerge themselves in the communities of their student, to gain awareness of students’ cultural customs, and encourage the development of individual cultural competency [11].

In literature, Black teachers are commonly referred to as ‘culturally relevant’ [7], [12]. Despite the set of unique traits common amongst culturally responsive teachers, Black teachers tend to unintentionally fit many of these criteria. Scholars have suggested that this is mostly due to their experiences of anti-Black racism and their values as teachers being one of creating an equitable learning environment and celebrating all students and their respective cultures [13], [8]. Additionally, most Black people are deeply connected to their culture, which is reflected in their pedagogy and attitudes [13]. This allows Black educators to make culturally informed decisions and respond to Black students in a culturally familiar way [8]. Ultimately, a combination of Black teachers’ experiences with racialization, a strong connection to culture and culturally relevant practices, has been found to be a great equation when they are executing lessons and building relationships with students [13].

4. Methodology

Four in-depth, semi-structured interviews were conducted with Black Toronto high school teachers. Interviews lasted for approximately one and a half hours and questions were geared towards pinpointing participants’ understandings of culturally responsive pedagogy (CRP) in the context of Black student experiences of racism, how CRP is reportedly used in their classrooms, their perceptions of Black student engagement, and barriers to these teachers continued culturally responsive efforts. A qualitative research method was adopted to offer insight into patterns and meaning drawn from data while painting a holistic portrait of the experiences and perspectives of research participants [14]. Initially, a detailed e-mail was sent to the principals of schools in the Toronto District School Board with a high percentage of Black students. The e-mail was circulated and participants self-identified as meeting the following sample criteria: possessing five or more years of working experience with Black students, currently work in a school with a high percentage of Black students, being able to self-identify as Black, teach in an intentionally, culturally responsive way with Black students and work in the Toronto District School Board. Interviews were recorded, transcribed and analyzed using an inductive approach. In order to protect the identities of the participants, pseudonyms were used during the analysis process.

5. Research Findings

Three specific themes emerged through data analysis and are as follows:
1. Black educators measure Black student engagement differently from engagement in general
2. Identifiers of Black student disengagement subside during and subsequent to culturally responsive lessons
3. Culturally responsive Black educators are disadvantaged by the practices of other teachers

To allow for more detail, in the following sections I will identify and describe each theme further.

5.1. Black educators measure Black student engagement differently from engagement in general

Participants were asked to define student engagement, in doing so, Dwight and Rose opted to describe it as various levels of participation. An example of this is when Rose described that engagement simply “looks like students engaged in the process of learning”. Angela on the other hand, added to her initial general description which, seemed to deviate from the rest. She described student engagement as “a combination of students who are excited, they are smiling, they are happy to come to my class, they actually come to class, they are on time, they are not asking to go to washroom every two seconds.” At first glance it was unclear which of the behaviors listed by Angela and the other three teachers, were specific to Black students. Fortunately, that was no longer the case when all four teachers described Black student disengagement in a similar fashion. An example of this is Rose’s response where she reports Black students having “behavioral, or antisocial behaviors in class like,
name calling, disruptive behaviour [or] talking to each other about something that is off topic.” Another example is Jeffery’s response, where he described Black student disengagement as “inappropriate laughter, throwing things around the class, getting up and running around in the classroom, moving around, making inappropriate jokes.” These observable behaviors are drastically different from the more general definition that teachers used to define engagement.

It is important to acknowledge that here, I am comparing the excerpts from transcripts around engagement and disengagement and analyzing the data in a way that strictly regards these terms and their meanings, in an oppositional way. Therefore, when participants defined engagement as “they are not asking to go to washroom every two seconds”, I am assuming that student disengagement would mean that students are asking to go to washroom every two seconds. So, in reference to the data, it is quite telling that in definitions of engagement, not specific to Black students, descriptors like excitement, participation, smiling and happiness to attend class, are used in comparison to those used such as name calling, disruptive behaviour, inappropriate laughter, throwing and running, when specifically discussing Black students.

5.2. Identifiers of Black student disengagement subside during and subsequent to culturally responsive lessons

Participants were asked to describe an instance where they could identify a change in the engagement of Black students, specifically when using CRP. Dwight’s response encompassed a series of lessons when he had his grade nine English class read a play called My Children My Africa. As he began to describe the play he mentioned that at the beginning, he would get his students to write their names on the board, if they wanted to participate and read the lines of a character in the play. He described, that when they first started, a particular student was reluctant, but when they went on, he started to come into class really early just to write his name on the board and say “I want to be Mr. M or I want to be Timmy” because he was eager to be involved. Dwight passionately stressed that, his impression was that, this student, was hands down “not into what [they] were doing at all.” Oddly enough, Dwight felt that using this culturally familiar play helped because later on, when they started to read Twelfth Night, it carried over. Dwight recalls that “even though Twelfth Night is a Shakespearian play, [this student] still wanted to get involved…although, the two are totally different stories…he was completely engaged in it.”

A similar change in a student’s level of participation was observed by Angela. A student of hers had previously refrained from writing anything in her English class. Yet, as she continued incorporating books and poems routed in African history she “got him to write something.” Angela also noted that this remained consistent, even when the material “was not culturally responsive.” Later, she described that she “noticed a change in [this student], he was a chronic skipper, he never went to class.” But, as the semester continued the student began to come to class more. Both Rose and Jeffery recalled similar experiences of improved attendance in students who they perceived to have previously been disengaged as a result of implementing CRP.

The existing body of literature does not present a distinct relationship between culturally responsive pedagogy and the level of participation or attendance. Instead, it has been suggested by authors [5], [7] that it can be expected that Black student behaviour, academic achievement, dropout rates and engagement can be influenced by its use. Although, this has helped us to understand the potential of CRP, a direct relationship has yet to be found. It is important to highlight that it cannot be assumed that improved levels of participation resulted in an improvement in academic achievement, specifically for these students. Yet, it is equally important to emphasize the decline in negative identifiers of engagement mentioned in the previous theme (lack of participation and students skipping classes) specifically when teachers reshaped the curriculum to make it more relevant to their Black students and the persistence of these behaviours in future lessons, where more traditional materials were used.

5.3. Culturally responsive Black educators are disadvantaged by the practices of other teachers

During the interview process, each participant emphasized the importance of maintaining high standards in their classroom, and yet Rose shares that “[she thinks] what ends up happening in the end [is that] high standards are not maintained for students … including, but especially for Black students by other teachers.” She recalls a conversation with a student where she was told that “[her student] never had to do any work in high school, all the way through high school, until 12th grade English (her class), he just got away with doing nothing and still pass all of his classes.” Both Angela and Jeffery conveyed similar experiences with Black students. Jeffery suggests that Black students are “being passed on, and the large gaps in their learning… leads to behavioral issues.” Rose shared similar thoughts on low expectations, and the impact of those learning gaps on student engagement. Jeffery goes on to say that, as “a culturally responsive teacher you need to expect the push back from students. They are not used to high expectations, they will
resist and you will experience push back because the bar has been set so low by other teachers and the expectations have been set so low by other teachers, that they have been naturally conditioned to achieve or aspire to meet that low bar. So as soon as you come in with your high expectations there will be initial resistance.” The resistance these students displayed towards culturally responsive educators is not aimed at them directly, but rather, it is result of systemic forms of oppression and the low standards set by teachers which Black students have become acclimatized to. Angela experienced this first hand as Black students went so far as to drop out of her class because they were unwilling to even attempt to meet the expectations she set in her classroom towards the beginning of the semester.

6. Discussion

The improvement in Black student engagement noted by participants suggests that educators of Black students should look to CRP as a means to reduce poor in-class behaviour, attendance and participation. Furthermore, by using culturally relevant materials as an introduction to core concepts educators can experience maintained levels of Black student engagement when more traditional material are used. Secondly, it would be advantageous for CRP to be adopted as a school-wide approach in order to reduce this resistance culturally responsive educators experience. In addition to this I found that, participants were using participation and attendance as key indicators to identify the level of engagement in Black students, while poor in-class behaviour was used by participants to represent disengagement. Overall, these descriptors were very different from those being used to identify engagement in a general student population. As such, this contradiction emphasizes the ambiguity of the term engagement and suggests that it can represent different behaviours based on the context of the group being studied.

7. Conclusion

The varying identifiers used by participants raises a very important question; how do culturally responsive teachers weight decisions such as maintaining high standards and expectations versus simply getting students to show up to class. Future research needs to address this more thoroughly in order to truly begin to understand what CRP means and looks like for Black students and those who choose to employ it.

8. References


Session 47: Learning / Teaching Methodologies and Assessment

Title: When words alone don’t speak: A case study of the pedagogical possibilities and practicalities of exploiting instructional delivery
(Authors: Christopher Klopper, Wendi Beamish, Helen Klieve)

Title: The Impact of Household Income on Students Financial Literacy
(Author: Dorjana Nano)

Title: Aims and Objectives: Vocational Education in India
(Author: Suketu V. Shah)
When words alone don’t speak: A case study of the pedagogical possibilities and practicalities of exploiting instructional delivery

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Abstract

This case study explores preliminary findings of a case study that utilised design-based research to corroborate the pedagogical possibilities and practicalities of exploiting instructional delivery technologies to enrich higher education courses through a blended mode of delivery. We propose to illustrate how creating opportunities for students to engage in a range of social interaction and collaborative activities foster quality learning outcomes through a diversity of perspectives and dynamic exchange which in turn strengthen the working and learning of partnership-based higher education.

1. Introduction

For a number of years, people have been declaring the advent of the “digital native” born of the “Net generation.” These terms describe members of a generation whom have been exposed since birth to the internet and hypertext. There is an expectation that this group think and process information differently from previous generations. In some higher education institutions this has led to calls for curricula and instructional delivery technologies to be revamped in order to cater for these “new learners.” The growing importance of educational design recognizes that students’ needs are becoming more diverse, that teaching staff are under increasing pressure to provide better education with fewer resources, and that employers’ expectations of new graduates are not diminishing. Reproducing traditional practices can be efficient if the environment is static, but in times of transformation, pedagogical methods need to be rethought; “We have to build the means for e-learning to evolve and mature as part of the educational change process, so that it achieves its promise of an improved system of higher education” [1].

The underlying assumption that these technologies better cater for the learning needs of today’s student population does often not take into account the motivation and expertise of academics and the context in which they currently operate. For instance, Australian universities and their academic staff are foremost measured on their research status, which puts pressure on lecturers to invest more time on research outputs. Under these conditions the uptake of new technologies is, in the authors’ experience, patchy and varied. This claim is supported by results from a recent study [2] which demonstrates that not all university faculties are equally responsive to implementing the range of available learning technologies in their courses.

2. Pedagogical Possibilities: A description of the program

Sign bilingual education as an approach to the education of deaf children, has been recognised in policy and practice in Australia for many years [3]. The successful implementation of this approach requires staff to have a sound linguistic knowledge and communicative competence in Auslan, as well as an understanding of current theory and pedagogical practices. The purpose of the Auslan program was to upskill geographically isolated teachers and teacher assistants around the state of Queensland in relation to instructional proficiency and understanding the role of Auslan as the language of instruction for deaf students. The Auslan program, comprising four courses (Auslan 1 through 4), was executed over two years across four consecutive teaching periods of 13 weeks. Course content was sequenced to reflect the progressive nature of language learning, and extended into forms of pedagogy and curriculum design. These elements provided both broad and specific reference points for understanding the applications of Auslan in schools. Participating staff were introduced chronologically to the core design features of the language: grammar, central elements of sign formation, expressive and receptive use of the language, sociolinguistic variations and considerations of situational factors in sign language use. Expressive and receptive practice with the Auslan language was maintained within and across courses. Additionally, procedures for continuous assessment and feedback were included to support and enhance learning and Auslan proficiency. The first three courses afforded participating staff one day per week of release from school duties across the university semester to engage in a combination of lectures, tutorials, and independent study via a mix
of face-to-face, videoconferencing, and on-line delivery modes. For these courses, the teaching period culminated in a face-to-face intensive week of Auslan language exposure and practice, using language “immersion” techniques as well as explicit teaching of linguistic features and structures. The final course afforded staff one day per week of release across the university semester to design and implement an action research project in schools as summative assessment.

3. Practicalities of exploiting instructional delivery

The program followed a five-stage iterative process for gathering data from students about their competence and experience of online learning. At the commencement of the program, baseline data was collected and then sequentially at the end of each course. All data was collected by means of online survey. At collection point one, all participating students \([n = 26]\) were asked to respond to items concerning computer efficacy, attitudes, and technology-related anxieties adopted from The Computer Technology Use Scale (CTUS) [4]. Figure 1 identifies a number of items from initial responses to the CTUS.

![Figure 1. Selected responses to 12 of the 49 items on the CTUS](image)

At collection points two through five, participating staff also responded to an online satisfaction survey with nine Likert-style questions and three open-ended questions related to experienced challenges and benefits that represented items from surveys evaluating web-based professional development programs [5 and 6]. Figure 2 summarises the overall patterns from the group. The first two items, the most positive in response, indicate that staff found the course site easy to navigate, with a clear improvement after the first period. Also they agreed that there were good opportunities to interact with the instructor through various mediums. In line with the comments on Figure 1, there seemed to be no marked change regarding confidence with the internet, with item 8 “this class has made me feel more comfortable using the internet” showing a neutral level across the four semesters of study. While there was a very clear response to item 9 (people learned as well on-line as in a face-to-face class), this is not surprising, but a number of participating staff also recognised that a fully face-to-face learning environment was not an option.

![Figure 2. Participant mean scores to satisfaction survey](image)

At each data collection point of the Griffith Student Experience of Course Survey, participating staff were invited to provide commentary. Here follows a distillation of the key themes that emerged and selected text offered from student responses:

- **Modes of delivery for learning**

  The offering of the Auslan program grew out of the need for the Queensland Department of Education and Training (DET) to upskill more staff (teachers and teaching assistants) to meet demands for educating deaf students across the state, particularly in rural areas. DET had already contracted Griffith University to deliver an Auslan program on two previous occasions, but online course development and learning had advanced substantially since the last offering in 2010. In order to satisfy the requirement to deliver the program to geographical isolated locations was a key consideration for the mode/s of delivery for learning. Griffith University, in common with many universities across Australia and internationally, utilises virtual learning platforms or Learning Management Systems (LMS) that provide the web-based framework to handle all online aspects of the learning process. These systems provided access to a range of instructional delivery technologies such as discussion boards, mail systems, live chat, lecture recordings and podcasting along with other course resources. A major goal of utilising these systems was to cater to a more diverse student population and enhance the quality of their university experience whether in situ (Brisbane, capital city of Queensland) or geographically dispersed across the state. At the outset of the delivery of the program, both the University and the participating staff were challenged by the technology on hand. When considering the outcomes of the program, which targeted building specific skill capacity in a group of specialised students, it is important to recognise that the use of technology was a facilitating factor rather than an objective.
Barriers to learning

The adult learner has many responsibilities that must be balanced against the demands of and barriers to learning. Some frequently identified barriers include (a) lack of time, (b) lack of confidence, (c) lack of information about opportunities to learn, (d) scheduling problems, (e) lack of motivation, and (f) “red tape” [7]. The participating staff in the Auslan program were by no means immune to such barriers. The educational environment is perhaps the most apparent area of academic influence. It may be understood to encompass the following areas:

- Teaching styles and educational choices that academics make in the design and set up of classroom experiences. In particular, a clash between a teacher’s teaching styles and the learner’s learning style may be a barrier to student success.
- The classroom climate, which includes the nature of teacher–student interaction, the teaching/learning activities and student learning feedback. Students feeling that teachers are unavailable or unapproachable has been shown to impact on their academic confidence and in turn to influence their academic performance. The extent and nature of feedback is known to influence the quality of student learning [8].
- The curriculum, including the design of the program and course and, in particular, the extent to which students can see relationships between courses and across programs. It also relates to the way in which the course is organised, including the time devoted to particular subject areas.
- Assessment, which might logically seem to fit with curriculum but is separated here to provide emphasis to the high priority that students put on assessment as a “driver” of their learning and hence the barrier that it may become.
- Not having regular, face-to-face, contact with lecturers.
- Time commitment taken for post grad studies.
- Finding time to make the course a priority.
- Having some people in the room and others off site made life difficult for everyone. Balancing a full time teaching load with the assessment was difficult.
- Collegial learning and sense of connection

A number of the identified barriers to learning can influence a adult learner’s sense of academic integration and social integration or, conversely, can contribute to academic isolation. The decision to offer learning through a combination of sequenced weekly teaching episodes culminating with an intensive in residence teaching week provided
invaluable opportunities for a sense of connection and purpose to establish. Participating staff remarked favourably of the intensive in residence teaching weeks and considered these times as a hallmark of delivery in this program. The cross-pollination of ideas between teachers and teacher assistants was an unexpected outcome, providing the opportunity for collegial learning and a sharing of experiences contributing to a rich tapestry of learning episodes.

- Challenging for those off campus as they found it more difficult to feel part of the group. I would have found it difficult if I was in a room by myself.
- Great that it is accessible to all staff over Queensland.
- Meeting great people.
- We will miss the camaraderie that developed between the students undertaking the course, particularly during the Block Weeks. WE learned a lot from other students as they came from a variety of programs supporting Students learning Auslan.
- I am thankful for the students who shared their knowledge and programmes. What I have learnt through this course has been used directly in my work and my skills have improved.

- Expertise of teaching staff

Griffith University’s principles to promote excellence in learning and teaching practices express the University’s values and commitment as a learning-centred, research university. This is coupled with the assurance of quality teaching staff, whether they be full-time academic appointments or contracted sessional staff with relevant industry-experience.

- The lecturers and interpreters for this course have been amazing!
- Great learning opportunity. Thank you to all the tutors and lecturers for a terrific opportunity!

4. Conclusion

The inclusion of many geographically isolated teachers and teaching assistants in the program was only possible by the program being completed in mixed-mode delivery. The design included several intensive teaching periods to build a cohesive group and support the use of delivery technologies for learning. At the beginning of the program, participating staff indicated a moderate level of skill and capacity with using computer technologies. At the end of the program, data collection gave a positive picture of outcomes, moderated by a clear preference for the face-to-face environment. Further, a number of graduates demonstrated high quality learning outcomes that would support aspirations for further study. This endorsement by graduates was congruent with the perceived satisfaction expressed by DETE (program sponsor) and aligned with the University’s expectation of advancing innovations in learning and teaching.

5. References


The Impact of Household Income on Students Financial Literacy

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Abstract

Financial literacy has become on focus of many research studies. Family household is found to influence students’ financial literacy. The purpose of this study is to explore whether financial literacy of Albanian students is associated with their family household. The main objectives of this research are: i) firstly, to evaluate how financial literate are Albanian university students; ii) secondly, to examine whether the financial literacy differs based on the level of students family income; and iii) finally, to draw some conclusions and recommendations in order to improve student’s financial literacy. An instrument comprised of personal finance and personal characteristics is administered to 637 students in Albania. The constituency of the survey is tested based on the dimension reduction and factor analyzing techniques. The One Way Welch ANOVA and multiple comparison techniques are utilized to analyze the data. The results indicate that student’s financial literacy is influenced by their family income.

1. Introduction

Nowadays financial literacy has become a life skill for individuals. People have to meet their everyday needs and wants and planning for their future. It is necessary for them to be financially literate in order to take smart financial decisions. “Financial literacy is knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life” [1]. Financial literacy can be conceptualized on three dimensions: financial knowledge, financial behavior and financial attitude.

University students constitute a very important segment of the population, since they are at a crucial time in life. Studies have shown that financial decisions made in the period of time establish habits that affect students’ financial ability in their future. University students constitute an essential segment of the tomorrow financial market. Unfortunately, studies undertaken on developed and developing countries have found that today university students are not financially literate and display implementing behaviors [2], [3], [4]. They have more financial opportunities to spend compared to students in past generations, but in opposition they are found to be less financial literate.

One of the main factors found to impact students’ financial literacy is parental influence. Studies have discovered that parents who discuss financial matters with their children impact positively their economic behavior and establish good habits for their future adulthood [5]. In addition, children who have benefited greater parental money management learning are found to experience less mortgage insolvency in their adulthood [6]. One way that children learn money management practices is their parents’ financial behavior. It is found that higher parental income is associated with inadequate financial attitude. This in turn stimulates unreasonable financial behavior. According to [7] students who report high parental income are more prone to spending money, less interested in financial matters and see less need for precautionary saving. Family income serves as an indicator of a student’s lifestyle, social class, and the resources and opportunity that are available to them.

Despite the large body of literature studying the relationship between family income and children financial literacy, there is still a lack of identifying this correlation in Albania. This research aims to investigate the impact of parental income on financial literacy of Albanian university students. The main objectives of this study are:
- Firstly, to evaluate a financial literacy score of university students based on three dimensions: financial attitude, financial behavior and financial knowledge;
- Secondly, to reveal if there is any divergence on students financial literacy based on their household income;
- Finally, to provide some conclusions and recommendations in order to help parents and students to improve their financial practices.

The main hypothesis of this study is: Students’ household income influences their financial literacy.

2. Research Methodology

This research utilizes a survey conducted on 637 students from five public and two private universities in Albania. The questionnaire is designed in two parts. The first part consists of 34 questions testing
the key concepts on financial knowledge, behaviour and attitude, which are considered as the three main components of financial literacy. The second part comprises 17 personal questions on age, gender, money management source of learning, parental income, etc. Financial knowledge section tests students’ knowledge on basic financial concepts such as borrowing and saving, investing and insurance. The financial attitude questions test students’ perceptions on money management practices and the financial behaviour test on how students would behave on specific cases with personal finances like: spending, budgeting, meeting everyday needs, etc. A score is evaluated for financial knowledge, behaviour and attitude, and combining the three scores it is created an overall score of financial literacy. The mean percentage of correct score (MPCS) is considered to identify the level of financial literacy of Albanian university students. A value equal or greater than 65% represents financially literate students, whereas less than 65% represents not financially literate students.

Data are gathered during the class time. The missed data are substituted by using the multiple imputation method in SPSS 20. Sample adequacy is measured based on the Kaiser-Meyer-Olkin test and Bartlett’s test of Sphericity, whereas the structural consistency of the questionnaire is tests by utilizing the Maximum Likelihood technique of the Exploratory Factor Analyses. In addition, the reliability of every section and of the overall of the questionnaire is evaluated by considering the Cronbach Alpha’s result. Furthermore, Skewness and Kurtosis values of financial literacy are then observed to investigate whether their values are normally distributed. Finally, the divergence on students’ financial literacy based on their household income is identified by utilizing analyze of variance. The differences are further analysing by utilising the Tukey post Hoc technique.

2.1. Data analysis and results

This survey is conducted on 637 university students in Albania. The response rate of the survey stands at 95% (607/637). Based on statistics of the survey the minority of participants (10.6%) have displayed minimal (0 – 20 000 Lekë) household income. Approximately half of the respondents (48.1%) have declared middle or lower middle family income (greater than 20 000 Lekë – 60 000 Lekë), and 36.6% reported upper middle or high family income (greater than 60 000 – 80 000 Lekë, or greater than 80 000 Lekë).

The internal consistency and validity of the questionnaire test how well and reliable the instrument measures what is supposed to evaluate [8]. Table 1 provides information about the sampling adequacy and reliability.

| Table 1. Consistency and reliability of the questionnaire |
|---------------------------------|-----------------|----------------|----------------|
| Kaiser-Meyer-Olkin - Measure of Sampling Adequacy, | 0.707 |
| Bartlett's Test of Sphericity | Sig. 0 |
| Cronbach Alpha | 0.770 |

KMO and Bartlett’s test show that we do not face a problem that inquires the investigation of the Anti-Image Correlation Matrix. In this case the null hypothesis is rejected indicating the necessity of conducting factor analyses. Based on the maximum likelihood technique of factor analysis, seven questions and two statements are extracted from the questionnaire since they loaded less than 0.3. According to [9] factors that load less than 0.3 must be extracted from an instrument. Finally, the value of the Cronbach Alpha test (0.770) demonstrates a good internal consistency of the overall questionnaire.

2.2. Financial literacy

In this section it is examined the mean percentage of correct score of participants financial literacy and are made relevant comparisons based on family households. Table 2 below provides meaningful evidence about the mean percentage of correct scores, standard deviation, skewness and kurtosis.

The distribution of MPCS values is viewed as normal since the values of skewness and kurtosis are close enough to zero. Statistics demonstrates that

| Table 2. Evidence of correct scores |
|---------------------------------|-----------------|----------------|----------------|
| Mean | Standard Deviation | Skewness | Kurtosis |
| 4-20,000 Lekë | 57.29% | 12.67z | -.58 | 0.289 |
| Greater than 20,000-40,000 Lekë | 59.70% | 13.49z | -.37 | 0.17 |
| Greater than 40,000-60,000 Lekë | 63.24% | 14.21z | -.52 | 0.143 |
| Greater than 60,000-80,000 Lekë | 59.75% | 13.47z | -.64 | 0.656 |
| Greater than 80,000 Lekë | 58.75% | 14.37z | -.516 | 0.295 |
| Differences between groups | F=10.340 | Sig. 0.000 |

Albanian university students are not financially literate. The MPCS are shown to be less than the threshold level of 65%. Although the low level of financial literacy, differences are found among different categories of participants. Results of analyze of variance reveal students with middle household income to score higher on financial literacy (MPCS = 63.24%), followed by students with lower – middle and upper – middle household income (MPCS = 60%). The least values of financial literacy scores are discovered among students with higher (MPCS = 58.75%) and minimal family income (MPCS = 57.25%). Findings of the F-test
examine these differences to be statistically significant (p=0.00) at 5% level of significance using the predetermined Type I error rate of α = 0.05.

Table 3. Multiple comparisons

<table>
<thead>
<tr>
<th>Family Income (in thousand Lekë)</th>
<th>Mean Difference (2-1)</th>
<th>Std. Error</th>
<th>Sig</th>
<th>95% Confidence Interval 2 ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 0–20</td>
<td>-2.541</td>
<td>.119</td>
<td>.54</td>
<td>-3.60</td>
</tr>
<tr>
<td>Greater than 20 – 40</td>
<td>-5.988*</td>
<td>.107</td>
<td>.000</td>
<td>-8.93</td>
</tr>
<tr>
<td>Greater than 40 – 60</td>
<td>-2.506</td>
<td>.155</td>
<td>.52</td>
<td>-3.95</td>
</tr>
<tr>
<td>Greater than 60 – 80</td>
<td>-1.506</td>
<td>.677</td>
<td>.41</td>
<td>1.60</td>
</tr>
<tr>
<td>Greater than 80</td>
<td>-2.541</td>
<td>.106</td>
<td>.54</td>
<td>-3.60</td>
</tr>
<tr>
<td>Greater than 40 – 60</td>
<td>-3.448*</td>
<td>.100</td>
<td>.54</td>
<td>-3.84</td>
</tr>
<tr>
<td>Greater than 60 – 80</td>
<td>-1.483*</td>
<td>.688</td>
<td>.91</td>
<td>1.04</td>
</tr>
<tr>
<td>Greater than 80</td>
<td>-2.506</td>
<td>.110</td>
<td>.54</td>
<td>-3.60</td>
</tr>
<tr>
<td>Greater than 40 – 60</td>
<td>-0.35</td>
<td>.100</td>
<td>.54</td>
<td>-1.94</td>
</tr>
<tr>
<td>Greater than 60 – 80</td>
<td>-1.483*</td>
<td>.688</td>
<td>.91</td>
<td>1.04</td>
</tr>
<tr>
<td>Greater than 80</td>
<td>1.000</td>
<td>.616</td>
<td>1.62</td>
<td>3.62</td>
</tr>
</tbody>
</table>

Results of analyse of variance are confirmed by the Tukey post Hoc technique, which considers multiple comparisons among different categories (table 3 above). Findings confirm that household Income influences students' financial literacy.

3. Conclusions, Discussions and Recommendations

This research surveys 637 students from five public and two private universities across Albania. It investigates the differences in students' financial literacy based on their household income. Results of analyze of variance suggest that university students are not financially literate. The mean percentage of correct score differs among different groups of students and stands less than 65% for each category. Results of this study provide evidence that parental income influence financial literacy of their children. Lower level of financial literacy is discovered among students with minimal family income and those with higher household income. The most financially literate are shown to be students who have declared middle family income.

Results of this research can be mainly explained by the fact that students with higher households' income may not have the right financial attitude towards money management. Since they have all the opportunities to fulfill their wants and needs they do not need to prioritize their budget, to track expenses and being careful about money management practices. Contrary, students with middle parental income may have learned that money matters. Parents’ financial behavior is the first model for their children. They can teach children that “money is there to be spent”, or “Money Matters”. In concert with other previous research on this topic, this study suggests parents to be aware about their role on teaching children good financial habits. Training parents on how to teach children smart financial attitude and behavior will make them capable to model constructive financial habits in the home.

The relationship between minimal household income and children financial literacy appears to be flaw in this study. Hence, future research it is recommended to be undertaken to investigate this association. Further quantitative research can also be conducted utilizing different techniques of study like logistic regression. Finally, qualitative study would be valuable to explicate in depth the causes and consequences of the role of parental income on their children financial literacy.
4. References


Abstract

Now India is developing country due to the development of science and technology. This has been possible because of the availability of material and human resources. India is too rich in these two resources. What is needed is their proper utilization. This requires expansion and development of vocational education. The need of the hour is to impart vocational education in order to acquire expertise in the field of "technical know-how".

Vocational education is concerned with the training on vocation. It is related to productivity. Vocational education prepares individuals for jobs. It has adequate employment potentialities. It helps in broadening of horizon. It leads to dignity of labour. It is helpful in the maximum utilization of the material resources of the country.

When vocational educational education is mixed with general education it is called vocationalisation of education. Vocationalisation of education is designed to introduce manual skills in general education. Vocationalisation of education means training in some vocations at the secondary, Higher Secondary level with general education.

According to the recommendation of the Secondary Education Commission (1952-53), the aim of vocationalisation of education is to improve the vocational efficiency of the students. Therefore, the Commission emphasized on increasing the productive & vocational efficiency of our students and it recommended for diversified courses in multipurpose schools.

Now-a-days, vocational education has got due impetus due to the development of science and technology. So planning and implementation of the programme will certainly help in controlling and solving the problem of educated unemployment of India. The National Skill Development Mission was approved by the Union Cabinet on 01.07.2015, and officially launched by the Hon’ble Prime Minister on 15.07.2015 on the occasion of World Youth Skills Day. The Mission has been developed to create convergence across sectors and States in terms of skill training activities. Further, to achieve the vision of ‘Skilled India’, the National Skill Development Mission would not only consolidate and coordinate skilling efforts, but also expedite decision making across sectors to achieve skilling at scale with speed and standards. It will be implemented through a streamlined institutional mechanism driven by Ministry of Skill Development and Entrepreneurship (MSDE). Key institutional mechanisms for achieving the objectives of the Mission have been divided into three tiers, which will consist of a Governing Council for policy guidance at apex level, a Steering Committee and a Mission Directorate (along with an Executive Committee) as the executive arm of the Mission. Mission Directorate will be supported by three other institutions: National Skill Development Agency (NSDA), National Skill Development Corporation (NSDC), and Directorate General of Training (DGT) – all of which will have horizontal linkages with Mission Directorate to facilitate smooth functioning of the national institutional mechanism. Seven sub-missions have been proposed initially to act as building blocks for achieving overall objectives of the Mission. They are:

1. Institutional Training,
2. Infrastructure,
3. Convergence,
4. Trainers,
5. Overseas Employment,
6. Sustainable Livelihoods,
7. Leveraging Public Infrastructure.

My paper shows the role of Industrial Training Institutes to develop skill to the trainees for Make in India dream of Government.

1. Make in India-Major National Program

- Designed to Facilitate Investment.
- Foster innovation.
- Enhance Skill Development.
- Protect Intellectual Property
- Build Best-in-class Manufacturing infrastructure.

2. National Policy on Skill Development

2.1. The Mission statement, aims and objectives

Mission:

The policy envisions the establishment of a National Skill Development Initiative with the following mission:
National Skill Development Initiative will empower all individuals through improved skills, knowledge, nationally and internationally recognized qualifications to gain access to decent employment and ensure India’s competitiveness in the global market.

Aims:
The aim of skill development in the country is to support achieving rapid and inclusive growth through:
B) Enhancing individuals’ employability (wage/ self-employment)
C) Ability to adapt to changing technologies and labour market demands.
D) Improving productivity and living standards of the people.
E) Strengthening competitiveness of the country.
F) Attracting investment in skill development.

2.2. Objectives of National Policy on Skill Development

The objectives of the national policy on skill development are to:
• Create opportunities for all to acquire skills throughout life, and especially for youth, women and disadvantaged groups.
• Promote commitment by all stakeholders to own skill development initiatives.
• Develop a high-quality skilled workforce/entrepreneur relevant to current and emerging employment market needs.
• Enable the establishment of flexible delivery mechanisms that respond to the characteristics of a wide range of needs of stakeholders.
• Enable effective coordination between different ministries, the Centre and the States and public and private providers.

3. Scope of the National Skill Development Policy

The coverage of the National Policy on Skill Development includes the following:
• Institution-based skill development including ITIs/ITCs/vocational schools/technical schools/ polytechnics/professional colleges, etc.
• Learning initiatives of sectoral skill development organized by different ministries/departments.
• Formal and informal apprenticeships and other types of training by enterprises.
• Training for self-employment/entrepreneurial development.
• Adult learning, retraining of retired or retiring employees and lifelong learning.
• Non-formal training including training by civil society organizations.

• E-learning, web-based learning and distance learning.

4. Functions of the Directorate General

4.1. Introduction to DGE&T

The Directorate General of Employment & Training (DGE&T) in Ministry of Labour is the apex organization for development and coordination at National level for the programmes relating to vocational training including Women’s Vocational Training and Employment Services. Employment service is operated through a countrywide network of Employment Exchanges. Industrial Training Institutes are under the administrative and financial control of State Governments or Union Territory Administrations. DGE&T also operates Vocational Training Schemes in some of the specialized areas through field institutes under its direct control. Development of these programmes at national level, particularly in the area concerning common policies, common standards and procedures, training of instructors and trade testing is the responsibility of the DGE&T. But, day-to-day administration of employment Exchanges and Industrial Training Institutes rests with the State Governments/ Union Territories Administrations. Distribution of responsibilities between Central Govt., State Govts and Industry has been shown in the table Tasks and Responsibilities.

4.2. Major functions of the DGE&T

The major functions are as follows:
• To frame overall policies, norms, and standards for vocational training.
• To diversify, update and expand training facilities in terms of craftsmen and crafts instructors’ training.
• To organize and conduct specialized training and research at the specially established training Institutes.
• To implement, regulate and increase the scope of training of apprentices under the Apprentices Act, 1961.
• To organize vocational training programmes for women.
• To provide vocational guidance and employment counseling.
• Assist scheduled castes/scheduled tribes and persons with disabilities by enhancing their capabilities for wage employment and self employment.
• To conduct regular training programmes for Employment Officers and develop staff training material for use by the Employment Service personnel.
• To collect and disseminate information concerning employment and unemployment and prescribe uniform reporting procedures.

4.3. Evolution of DGE&T

The Directorate General of Resettlement and Employment (DGR&E) now know as Directorate General of Employment and Training (DGE&T) was set up in July 1945 for the purpose of resettling demobilized Defense service personnel and discharged War Workers in civil life. After Independence, the Directorate was also called upon to handle work relating to displaced persons from Pakistan. Subsequently, the scope of the Directorate was extended to cover, employment services to all categories of job seekers in early 1948, and the training services to all civilians in 1950. In pursuance of the recommendations of the Training and Employment Service committee (Shiva Rao Committee set up in 1952) the day-to-day administrative control of the Employment Exchanges and Industrial Training Institutes (ITIs) was transferred to the State Governments/Union Territory Administrations with effect from 1.11.1956. Cost sharing by the Centre with the State Governments to the extent of 60% of the cost of the organization was continued up to 31-03-1969 after which the scheme was discontinued based on the decision taken by the National Development Council in May, 1968. Thus full financial responsibility for Manpower and Employment Schemes and the Craftsmen Training Scheme (Industrial Training Institutes) was transferred to the State Governments/Union Territory Administrations with effect from 01-04-1969. With each successive Five Year Plan there had been considerable expansion of the activities of the Employment Service and Training Service in the Centre and the States.

5. Vocational Training

5.1. Industrial Training Institutes (ITIs)

• Industrial Training Institutes play a vital role in economy of the country especially in terms of providing skilled manpower. At present there are a total of 11,964 (Govt. 2284 + Pvt. 9680) numbers of ITIs in all States/UTs. Training is imparted in 126 trades (73 Engineering+ 48 Non-Engineering +05 exclusively for visually impaired) of duration 1-2 years.

• National Trade Certificate - Nationally & internationally recognized under the aegis of National Council for Vocational Training (NCVT) is awarded to successful trainees.

• Vocational Training is concurrent subject. Central Government is entrusted with responsibility of framing overall policies, norms & standards & examination for vocational training while day-to-day administration of Industrial Training Institutes rests with the State Governments/ Union Territories Administrations.

• In ITIs, focus is towards imparting 70% skills & 30% theory. Admission in ITIs are done in month of August of every year based upon the criteria (entrance exam/merit list) lay down by respective state.

• Work of accreditation /inspection has been assigned to the Quality Council of India w.e.f 1.9.2012. All details regarding opening of new ITI as well as addition of new trades/units in existing ITIs are available on QCI’ web portal http://Nabet.qci.org.in

5.2. Training of Trainers (TOT)

• The Craft Instructor Training is implemented with the objective to train the Instructors of ITIs in the techniques of transferring hands-on skills. Structure of training programme is such that comprehensive training both in skill development and training methodology is imparted to the instructor trainees.

• Training of Craft Instructors is the responsibility of DGE&T in the Ministry of Labour & Employment. The Craft Instructors’ Training Scheme is operational since inception of the Craftsmen Training Scheme. The first Craft Instructors’ Training Institute was established in 1948. Subsequently, 5 more institutes namely, the Central Training Institute for Instructors {now called as Advanced Training Institutes (ATI)} at Ludhiana, Kanpur, Howrah, Mumbai and Hyderabad were established in 1960’s by DGE&T.

• Objective of the Craft Instructor Training is to train Instructors in the techniques of transferring hands-on skills, in order to train semi-skilled / skilled manpower for industry. Structure of training programme is to such that comprehensive training both in skill development and training methodology is imparted to the trainees.

• Under the programme, Instructors from Government and Private ITIs Centers established by industries under the Apprentices Act are provided training. Training in 29 Engineering trades is being offered in these institutes. Total seating capacity in the Engineering trades in operation in the above stated six Institutes is 1600. Second shift w.e.f November, 2012 has been started to increase the seating capacity under Crafts Instructor Training Programme. The Instructor Training Programme has also been started at Advanced Training Institute (ATI),
Chennai and in both Advanced Training Institutes for Electronic and Process Instrumentation (ATI-EPIs) at Hyderabad and Dehradun. Now the total seating capacity has been increased to 3338.

- During year 2010 government also allowed setting up of the Instructor Training Institute by State/UT Governments, companies like sole proprietor, private/public limited registered under companies Act, Societies and Trusts registered as per Act, and promoters of SEZs. In order to maintain quality and standards of Instructor Training, NCVT has approved separate standards for infrastructure and course curriculum. The institutes meeting the standards would be affiliated with NCVT. These institutes are named as Institute for Training of Trainers (ITOT). On completion of the training trainees would be trade tested and awarded National Craft Instructor Certificate. Guidelines for setting up of ITOTs were issued in Jan 2012. One such institute has been affiliated in Nov 2013.

- The NVTI at NOIDA and RVTIs at Mumbai, Bangalore, Thiruvananthapuram, Jaipur, Allahabad, Indore and Vadodara are also providing Instructor Training Course exclusively for women in non engineering trades like Secretarial Practice (English), Secretarial Practice (Hindi), Electronic Mechanic, Dress Making, Computer Aided Embroidery & Needle Work, Fashion Technology, Architectural Assistantship and Beauty Culture & Hair Dressing. Total 540 seats (120 in NVTI and 60 in each RVTIs) are available for Instructor Courses in above institutes.

- To make instructor training more flexible, Modular pattern of Craft Instructor Training in place of conventional one year training has been introduced in CTI and ATIs with effect from session started from August, 2009. For Engineering trades, the training programme has been divided in following four modules each of 3 months duration for the trades included in seven groups like:
  - Carpenter, Foundryman, Pattern Maker, Sheet Metal Worker, Welder (Gas & Electric), Plumber
  - Draughtsman (Mechanical), Draughtsman (Civil), Reading of Drawing & Arithmetic (ROD & A)
  - Fitter, Turner, Machinist, Machinist (Grinder), Tool and Die Maker and MTMM
  - Electrician and Wireman
  - Maintenance Mechanic (CP), Attendant Operator (CP), Instrument Mechanic (CP), Laboratory Assistant (CP) and Instrument Mechanic
  - Electronics Mechanic, Mechanic Radio and TV and IT&ESM

- Under the modular concept, multi entry and multi exit provision has been made to make programme flexible so that instructor can take up training in any of these modules at any of the institutes as per his convenience. Module on Engineering Technology is common for trades covered in a group.

5.3. Training Methodology (TM) - common for all trades.

- Engineering Technology (ET) - common for similar trades in a group.
- Trade Technology I (TT-I) - trade specific.
- Trade Technology II (TT-II) – trade specific.
- For non-engineering trades, training is being offered in following four modules each of 3 months duration.
  - Trade Skill-I.
  - Trade Skill-II.
  - Training Methodology.
  - Vocational calculation & Science
  - "National Craft Instructor Certificate” is awarded only after successful completion of all four modules.

5.4. National Council for Vocational Training (NCVT)

Ministry of Labour & Employment has constituted a tripartite body at the National level namely National Council for Vocational Training (NCVT) to advise the Government on training policies, norms and standards, trade testing and certification.

5.5. Schemes for Training

- Craftsmen Training Scheme (CTS).
- Women Training.
- Skill Development Initiative Scheme (SDIS).
- Apprenticeship Training Scheme (ATS).

6. Apprenticeship Training Scheme (ATS)

- Model Contract Form of Apprenticeship Training under the Apprentices Act, 1961
- Group of Industries covered under Apprentices Act
- List of designated trades for Trade Apprentices
- Details of Designated trades with trade syllabus
- List of Subject Fields designated for Graduates apprentices
- List of Subject Fields designated for Technicians & Vocational (Technicians) apprentices
Orders / Circulators
- Apprentice Protsahan Yojana

7. Structure of training Directorate

![Directorate Structure Diagram]

Table 1. Description

| JDT | Joint Director of Training |
| DDT | Deputy Director of Training |
| ADT | Assistant Director of Training |
| TO  | Training Officer |
| JTA | Junior Technical Assistant |
| LWE | Left Wing Extremism |

Figure 1. Directorate Structure

Regional Directorates of Apprenticeship Training NCVT Implementation Orders

8. Central Institutions
- Foremen Training Institutes (FTIs)
- Advance Training Institutes for Electronics and Process Instrumentation (ATI-EPIs)
- Advanced Training Institutes (ATIs) [Formaly MITIs]
- Apex Hi-Tech Institute (AHI)
- Central Training Institute for Instructors (CTI)
- Advanced Training Institutes (ATIs)
- Women Training
- Other Institutions
- National Instructional Media Institute (NIMI)
- Central Staff Training & Research Institute (CSTARI)

9. New Initiatives for Industrial Training Institutes

1. Flexi MoU
2. Revamp of curriculum
3. Capacity Building
5. Grading of ITIs
6. Apprentice Protsahan Yojana
7. Industry Participation
8. Model ITI
9. NCVT MIS Portal
10. Partnership with Industries- MoUs
11. Training of trainers through distance learning

10. References


Session 48: Pedagogy

Title: Preparedness of Graduate-Teachers from the University of Trinidad and Tobago for the Real Classroom
(Authors: Leela Ramsook, Marlene Thomas)

Title: Positive Education as a Part of Issues with Consumerism
(Author: Ayame Matsumura)

Title: Catering for Linguistically and Culturally Diverse Children in Guyana
(Author: Michelle Semple-McBean)
Preparedness of Graduate-Teachers from the University of Trinidad and Tobago for the Real Classroom

Leela Ramsook, Marlene Thomas
University of Trinidad and Tobago, Trinidad and Tobago

Abstract

Many teachers who are currently employed by the Ministry of Education (MOE) at primary schools in Trinidad and Tobago are graduates with a Bachelor of Education (B.Ed.) degree from the University of Trinidad and Tobago (UTT). They were exposed to a range of courses including the practicum component of the programme. The purpose of the study was to evaluate the extent to which the UTT graduate-teachers have been prepared for the reality of the classroom. The study investigated the graduate-teachers’ beliefs about their preparedness for their present role in the classroom. It also explored their classroom teaching experiences, as well as determined the factors that contributed to their effectiveness or lack of effectiveness in the actual classroom situation. A mixed method study, with both quantitative and qualitative data, was conducted. Purposive sampling was used to gather data from sixty participants. The methods used for collecting data included face to face interviews, focus group interviews, questionnaires, and journaling which facilitated triangulation. The data analysis comprised an integration of statistics and coding or formulating categories to discover emergent themes. Findings revealed that graduate-teachers believed that they were prepared for the ideal classroom. However they felt that the real classroom was challenging. They affirmed that mitigating factors such as indiscipline and the complexity of the daily school activities contributed to their effectiveness or ineffectiveness. The results indicate that graduate-teachers regard the programme taught at UTT as important and relevant. But, they found that there are some courses which are not meeting the needs of the real classroom. It is their view that there should be modification and replacement of courses with more meaningful ones. Graduate-teachers believe that there should be more hands-on practice in classroom management techniques, together with counselling as a compulsory course to aid with some challenges in the classroom. The themes that emanated include 1. Equipped with Competency 2. Complexity of the Classroom 3. Pragmatic Applications for Challenges 4. Inclusive Practice in Action. In conclusion, while UTT’s programme is perceived as commendable, it should be revised on a regular basis to meet the needs of an ever changing, dynamic educational system. The research informs policy decision making and suggests that changes should be made to UTT’s B.Ed. programme, and by extension other similar programmes, to make teacher preparation more functional for effective classroom practice. One of the recommendations is a period of internship for all graduate-teachers from UTT, as well as other higher education institutions, so that they (graduate-teachers) may be fully prepared for the complex actualities of the real classroom.
Positive Education as a Part of Issues with Consumerism

Ayame Matsumura
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Abstract

Impacts of positive education on educational consumerism are to be critically analyzed from a student and institutional standpoint. Theoretically, positive education has the potential to solve issues with consumerism in education (e.g. students’ academic disengagement and excessive vocationalism). However, in its practice, it will cause extreme hedonism and increase teachers’ burdens, thus ending up as part of the problem. Therefore, it is suggested that positive education should be carefully implemented to maximize its benefits and minimize its potential drawbacks.

1. Introduction

Recently, a great deal of attention has been paid to positive education. Positive education is based on positive psychology, the study of processes and conditions which benefit optimal functioning of people, groups, and organizations [1]. Positive education aims to integrate this knowledge into best-practice teaching and educational systems in school settings to promote human flourishing human functioning [2]. Recently, positive education has been gaining widespread popularity, as indicated by massive Google Search results (19,600,000 hits) or the International Positive Education Network [3]. Its potential influence should be critically examined in light of current educational problems. One such problem is consumerism, where students are regarded as customers and education as a product [4][5]. Consumer culture can lead to low academic motivation [6], excessive career orientation [7], hedonism among students [8], and increased teacher duties [9]. In this essay, these issues are discussed in relation to positive education.

2. Antidotes to Consumerism?

Firstly, according to its goals, positive education attempts to motivate students’ academic engagement, which is diminished by consumer culture. Currently, most pupils in university prefer to take effortless subjects. That is to say, almost three-quarters of students showed their preferences for a class which is easy to achieve an A grade, but provides little or no learning outcomes [6]. In other words, students put more importance on how to effortlessly pass the subject, rather than how much knowledge or skills they could obtain. They are also relatively indifferent to feedback from a lecturer. For example, a lecturer was surprised to know that his student was disinterested in a seminar to evaluate the strong and weak points in their assignments [10]. This example indicates their low motivation to utilize the feedback for their future assignments. Admittedly, it is difficult to assess one’s own absolute level of academic motivation as the interpretation is almost always subject to self-bias. Cautions are also required to generalize one specific example. Having said that, together with the questionnaire result aforementioned, it is reasonable to argue students have relatively passive attitudes towards academia.

Positive education might however, have at least the potential to counteract the issues of students’ academic disengagement. Firstly, it aims to enhance their motivation and engagement. According to educational guidelines from one of the pioneering schools in positive education, they attempt to promote engagement, accomplishments, and academic performance [11]. If such a policy is successfully embedded in school culture, most students will actively engage in academics, which might have counteracting effects on the issue. Secondly, positive education may indirectly enhance students’ academic motivation. To be more specific, it attempts to promote students’ relationships and well-being [12]. Here, it should be noted that there is a positive association between motivation and relationships [13] or well-being [14][15]. Though the direction of effects has yet to be determined, it can be argued that most students with low levels of happiness or poor relationships do not have energy left to actively engage in study. All in all, positive education will contribute to students’ relationships, and well-being, which in turn may help to promote their academic motivation. Of course, the intended educational goals do not necessarily imply that positive education enhances students’ academic motivation, relationships, or well-being in its implementation. With that being said, their policy
may help to solve the problems of students' low academic motivation led by consumer culture.

Likewise, positive education may have the power to mitigate excessive vocationalism raised by consumer approaches to education. Recently, many educational institutions appear to regard themselves as providers of education to customers (viz. students). In Korea, eight famous specialized high schools are highly regarded due to outstanding career paths of their graduates [7]. In other words, institutions "sell" quality education for the future of the "customers". Consistent with this, university students seem to place more emphasis on career outcomes than academic learning. Nearly half of students admitted force themselves to study uninteresting subjects to improve their career prospects. Furthermore, dominant satisfiers for students are career prospects (85%), which outweighed stimulation to learn (69%) or intellectual challenge (65%) [16]. These findings indicate that students may be reluctant to engage in activities irrelevant to their career goals. It may be possible that these figures may be slightly differ according to each individual school. Having said that, together with the consumer approach advocated by institutions, the current goal for many institutions and students might be their career advancement rather than learning. The excessive focus on career may lead to neglect of other aspects of education, such as personal growth as a human. On the other hand, positive education clearly acknowledges the importance of such educational aims other than career enhancement. For instance, St Peter’s College [12] attempts to cultivate virtue (e.g. compassion, honesty, forgiveness, and perseverance). In such a school climate, students may be more motivated to be an individual with virtue. Their motivation will not only aid in their job-hunting but also their personal relationships, well-being, and well-being for others. In that sense, positive education seems to have long-term benefits compared to current education systems, which mainly aid in job-hunting (a short-term goal). All things considered, positive education can not only combat the issue with excessive vocationalism, but also contribute to the spiritual development of students, if the practice follows the educational policy.

3. A Part of Consumerism?

On the other hand, positive education may contribute to overemphasis on students' positive affects, a trend developed by consumer culture. For example, some students want to be entertained in classes as "customers" and therefore care about the lecturer more than the subject itself. In one qualitative study, one student admitted that she would not choose the subject if the lecturer were not entertaining or humorous [8]. Such tendency to maximize pleasure in class may sometimes inhibit learning. For one thing, they may miss the opportunity to learn novel information in other classes they refuse to take because they are "difficult" or "uninteresting". For another, they may fail to acquire different methods of critical thought. As indicated in the experience of law school students [17], obtaining new thinking pathways almost always involves harsh challenges that modify existing ideas. As a student who has felt stressed about learning different perspectives, it sounds natural that students with consumer attitudes would choose amusing subjects, leading to excessive hedonism in their learning. Here, it should be acknowledged that positive education could exacerbate such trends. Basically, positive education aims to support students, schools, and communities to "flourish", which is measured by the extent of feeling good and doing well [11]. As this definition does not include the potential benefits of a challenge experience, it may encourage students to avoid academically difficult classes. Put differently, students can use the importance of "feeling good and doing well" as an excuse to avoid challenging studies. Therefore, positive education likely aggravates hedonic tendencies among students.

Further, positive education may increase teachers' duties together with consumerism in education. Recently, there has been an increased influence of students' evaluations on education. Nowadays, most universities conduct surveys to investigate students' opinions and improve their curriculum [9]. Likewise, at some universities, students themselves publish a book on the evaluations of their classes [18]. As a student who has participated in the questionnaire and read the book, these assessments seem to play a great role in evaluating the quality of the subject. Such predominant roles of student voices will increase the burden on teachers, as they are likely to feel obliged to satisfy students needs. Since each student has unique demands, teachers may further likely feel challenged or even burned out while planning and teaching classes. Here, it should be noted that positive education may further escalate such burden. According to the Visible Wellbeing Instructional Model [19], the roles of teachers are highly regarded in its actual implementation. They are required to learn positive education knowledge (Visible Learning), employ it through activities and classes (Positive Education), and assess the efficacy of their practice (Visible Thinking). Alternatively, teachers will be expected to engage in additional tasks as well
as their current work (e.g. lecturing, tutoring, and academic assessments). In reality, St Peter's College [12] clearly acknowledges that it is the teacher's responsibility to embrace student well-being. Such increased duties will likely create additional stress. Indeed, higher stress causes teacher burnout [20] reducing their well-being and thusly deteriorating positive climates for the entire school. Ironically, it is possible that positive education increases the workload of teachers and eventually reduces well-being, contrary to its initial aims. In that sense, positive education may promote issues caused by consumer culture in education.

4. Conclusion

In conclusion, positive education has been found to help perpetuate problems raised by consumer culture despite its potential benefits. Admittedly, positive education can increase students' academic motivation and solve excessive vocationalism, if the practice is consistent with the policy. On the contrary, it likely enhances extreme hedonism in a student's learning and increases the teachers' burden. With these pros and cons in mind, it will be necessary to maximize the benefits and minimize the adverse effects in its implementations. To be more specific, students should be taught the importance of challenges as well as the skills for flourishing. As for the teachers' burden, every effort should be taken to reduce their workload (e.g. utilizing teaching assistants). Further research is needed to examine the roles of positive education on other aspects of consumer culture, such as the reversed power relationships between teachers and students [21].

5. References


Catering for Linguistically and Culturally Diverse Children in Guyana

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Abstract

Children’s Creole language or mother tongue is usually rejected in Early Childhood settings in Guyana. This practice of rejecting children’s home language breaches the UN Convention of the Rights of the Child which promotes the principle of development of and respect for the children’s language. More significantly, this practice contradicts developmentally appropriate early childhood learning experiences which dictates that children’s home language is probably the best medium for early interactions. Empirical study has attributed this problem to lack of sociolinguistic knowledge of Creole and limited pedagogical training [1]. In light of this finding, in 2010, the University of Guyana made a deliberate attempt to advance knowledge about Creole acceptance and appreciation when the first early childhood professional development training programme was introduced. This research paper examines the impact the training programme made on participants’ interaction experiences with Guyanese Creole speaking children. It highlights how participants’ knowledge of language acceptance principles influences their recognition of Creole as a legitimate way of speaking, and recommends key characteristic considered necessary for effecting changes in practice.

1. Introduction

In 2007, the first published research report about early childhood teachers’ attitudinal ambivalence to mother tongue use in classroom in Guyana revealed that 70% of the teachers rejected and/or corrected Guyanese children’s Creole-English [1]. The result of this practice has been negative interaction experiences with children’s stimulation and learning outcomes. Overall, teachers reported that children seemed embarrassed, hurt, confused, humiliated, withdrawn, rejected and rendered silent by their critiques. One teacher shares her observations about rejecting and correcting children’s home language: ‘They [children] may pause and appear as though they don’t understand what was just said. They will just left stood-up looking at you’. Another reported: ‘Children feel amazed, hurt and confuse[d], and if they are answering a question and are corrected during this time, they do not continue ….’

The significant contributor to teachers’ attitude towards Guyanese Creole-English (GCE) was attributed to curricula offered at the teacher-training institutions, as observed below by one of the recommendations given in a compulsory module entitled Nature of Language [2]:

Our students’ speech patterns [...] are greatly affected by Creole interference [...] Remember [...] our task as teachers is to all times try to achieve the Standard English by [...] correcting the speech patterns of the students. (p. 115)

Given that one of the most significant aspects of children’s early schooling experience is the ability to speak in the classroom, and their home language is often considered the best medium through which it can be done [1], the University of Guyana made a deliberate attempt to advance knowledge of this principle when the first Early Childhood Professional Development (ECPD) training programme was introduced in 2010. One course (Social Development of the Young Child) covered the development of effective and culturally relevant teacher-child interaction practices. Knowledge about respecting children’s first language was specifically targeted in the module entitled: Catering for Linguistically and Culturally Diverse Children.

2. Brief module description

The module, Catering for Linguistically and Culturally Diverse Children, introduces practitioners to the relationship between language and culture and the way these are expressed. It highlights their role as Early Childhood Development (ECD) practitioners in the promotion of language experiences, with specific focus on how children learn language and develop identity, self-image and their image of others. Emphasis is placed on the acquisition of language during the early years and the implications of developing impressions of the social and cultural images during this period. The main aim is to bring awareness of the images and impressions being passed on to young children so that they do not contribute to warping, perverting, stereotyping and misconceptions in the minds of the children.
3. Preliminary performance outcome

Feedback from the participants of the University of Guyana ECPD training programme suggests that the module reshaped their attitude and approach to the use of Creole in the classroom. The dramatic component of the module, The Trouble With Neketa, was reported to have particularly influenced changing interaction practices. The Trouble With Neketa, a dramatic dialogue, highlights identity, self-image, culture, and stereotyped views amongst Neketa’s (a child) teachers, her mother and a family friend, in their attempt to eradicate Neketa’s use of GCE. Three years after programme participation, the ECD practitioners continue to implement strategies associated with this dramatic piece. This research paper shares the findings about these ECD practitioners’ post training Creole interaction experiences during children’s stimulation and learning activities.

4. Research Question and Approach

The question addressed by this report is: ‘What impact has the University of Guyana ECPD programme made on ECD practitioners’ interaction experiences with Guyanese Creole speaking children? To date, reports on this issue in Guyana have identified the problematic nature of classroom interaction (see, for example, Wilkinson and Banwarie [3]; Wilkinson [4]); however, none has explored how training contributes to changing practice in actual classroom contexts, such as, direct observations of everyday exchanges. Therefore, this research, set within the qualitative case study paradigm, was appropriate for capturing these everyday naturalistic-type data [5]. The selection of the cases is based on post-programme observations of the practitioners (n = 34) who graduated from the training programme between 2012 and 2014. Observation, video-review and semi-structured interviews positioned the interactions of the two practitioners presented in this report within two levels of Creole interaction experiences. The first, Ms Caesar, is the only practitioner who fully permitted the use of, and predominantly spoke in Creole in the classroom prior to training. Post-training records show that she now engages children in both Creole and English - the official language of Guyana. Prior to training, the second, Ms Dass, rejected Creole but, after training, adopted a Creole immersion approach. Names are pseudonyms.

5. Interplay of course elements

This section discusses how various attributes of the course worked in an integrated fashion to foster changes in practitioners’ interaction skills of engaging in Creole conversations. The arguments surround the main tenets of the course that, (i) the content satisfactorily offered specific coverage to advance knowledge about how to interact with Creole speaking children. And, (ii) the practice-based element would have had long-lasting effects on ECD practitioners’ skills to perform linguistically and culturally relevant interaction practice. To examine whether these attributes of the course might be sufficient to bring about positive changes in practice and attitude, two classroom interaction episodes (entitled, Lunch-time discourse and Picture recognition discourse) have been selected to give accounts of what changes in practice look like, and why the ECD practitioners associate these practices with participation in the UG ECPD programme.

5.1. Lunch-time discourse

The video-recorded activity illustrated below took place during the Lunch Session. At this early childhood centre, children bring packed lunches which are stored on a rack and distributed by the ECD practitioners at the beginning of the session. Creole is the predominant language of this group of four-year-olds. Working in this predominately Creole speaking community, Ms Caesar has to balance the advice given by her practicum tutor (the need for children to speak in English), and that of the module on language acceptance.

Ms Caesar: [Holds up a lunch bag] Somebody got a new bag.
Coby: [Stands and exclaims] Yeah! I mammy buy am.
Ms Caesar: I mammy buy am? My mommy bought it. [Rubs Coby on the head and speaks in a playful and suggesting tone] My mommy bought it.
Ms Caesar: Yes, my mommy bought it.
Candy: [Next to receive lunch bag] Meh buy dis bag yestada a makit. (Yesterday, I bought this bag at the market.)
Ms Caesar: You bought your bag yesterday? Candy: Eh, eh (yes).
Ms Caesar: And who took you to the market? Candy: Meh buy am a makit. (I bought it at the market.)
Ms Caesar: You? No one took you to the market.
Candy: Meh momma. (My mother)
Ms Caesar: Ok, that’s nice. [Turns to another children] You could take out your snacks.
Candy: [Continues to talk as Ms Caesar attends to the other children. She gets up from her seat and walks...}
over to the researcher who is sitting at the back of the class. She touches the researcher and speaks in a high tone] A rat bin want bite me and meh momma kill am. (A rat was about to bite me, but my mother killed it.)

Ms Caesar: [On hearing parts of Candy’s comments] Wow, your mother saved you. Did it get away?

Candy: Na, sh teck wan… [words unrecognisable] and nack am and shy am… [words unrecognisable]. (No, she took a... and knocked it, and pelted it....)

Ms Caesar: Oh my, she shy [pelted] the rat too? She shy [pelted] the rat too? Oh no, it must be dead.

Candy: [Giggles] Eh, eh (yes). Our discussions about this extract unravelled a number of changes in practice. Ms Caesar related that making commentary about the children’s new lunch bags was a strategy she had adopted to engage the children in conversation in addition to the occasions when she purposefully set out to teach specific concepts and introduce content. She was of the opinion that prior to programme participation, she might have prevented them from talking so much at lunch time, ‘Uh, I might have said, “It’s time for snack now, no talking”’. Ms Caesar credited this specific change about talking more with children during activities to her tutor. Throughout my interviews with Ms Caesar, high credit was given to her tutor for the changes observed in her practice. As a matter of fact, she was of the opinion that almost all the effective strategies observed, were direct results of her tutor’s interventions, recommendations and illustrations. I was therefore taken aback when she claimed that the Creole discourse between her and the first child (Coby), in the above episode, was a strategy promoted by her tutor.

Researcher: How about the way you interacted with Coby? … I was wondering whether you could have asked him if he thanked his mommy for buying him the bag.

Ms Caesar: [Pauses for about 5 seconds] Um, not really. No, I did not think about that.

Researcher: Uh, you corrected his Creole; do you think that’s a reason why his conversation about his bag ended prematurely?

Ms Caesar: But my tutor encouraged me to correct their Creole in a ‘kind way’….

It should be noted that Ms Caesar’s tutor (Ms Clay) was one of the most effective at offering quality supervision. On this basis, it appeared out of character for her to advise her trainee to restrict the use of the children’s first language. To corroborate the caregiver’s story, during the interview with Ms Clay, a question was asked about the Creole restriction recommendation. Her response suggests she did encourage Ms Caesar to place restriction on the use of Creole.

Given that this tutor did not give her trainee specific strategies about teaching English as a second or an additional language, from a socio-linguistic standpoint, the advice given might appear incomplete. My professional experiences of working with young Guyanese children over the past 26 years reveal that direct and suggestive correction such as the strategy used with Coby (I mummy buy am?), often restricts extended conversations. Also, others have established elsewhere how this practice negatively impacts on children’s learning and language development (see, Callender [6]). Paradoxically, considering that English is the official language of Guyana and the language of instruction in formal school, the recommendation of this tutor is understandable. Therefore, instead of allowing children to converse only in Creole (as she did before training), Ms Caesar now attempts to introduce English structures. In introducing English structure during conversations, Ms Caesar did restrict Creole interactions on some occasions; but, as the episode shows, she allowed Creole usage on other occasions or when spoken by particular children. In relation to the example above, her justification for allowing Candy to speak in Creole without correction is as follows:

You see, she is new. That was her first week at school; we learnt that we should allow them to speak in the Creole language then gradually teach the English.

Investigation into these variations in practice reveals that Ms Caesar is not only performing strategies recommended or modelled by her tutor but she is also incorporating strategies learnt from taught courses. She makes specific reference to the module on Working with Linguistically and Culturally Diverse Children. Overall, Ms Caesar has demonstrated how the interplay of feedback from tutor, taught components and reflective practice produced changes in interaction experiences.

5.2. Picture recognition discourse

Unlike Ms Caesar, Ms Dass, the second practitioner took a different approach to Creole usage in her classroom. Considering her interaction with children as an improvement on past practice, Ms Dass no longer corrects or rejects children’s Creole; she adopted a Creole immersion approach. This observation is evident for episodes such as the following:
Ms Dass: Today we will be colouring… Everyone has a picture to colour?
Children: Yeah!
Ms Dass: [Displays a sample of the picture on the worksheet] Who could tell me what this is? […]
Dave: Ice cream. [In my opinion this black and white picture looks like a cone]
Ms Dass: This is a shell; a sea shell.
Children: A sea shell.
Ms Dass: And where do we find them?
Children: Wata side! (seashore)
Ms Dass: Yes, very good, [displays another picture] who could tell me what this is?
Dave: Meh na know (I don’t know).
Ms Dass: You don’t know? Man, this is …. […]
Dyal: [Observes Danny submitting worksheet] I na (I’m not) finish[ed] yet teacher.
Ms Dass: [Turns to Dyal] Don’t worry, I’ll wait for you. Take your time, I’ll wait for you….

Throughout the period of the observations, interaction experiences between Ms Dass and children were rich and engaging and no effort was made to reject or correct children’s Creole language. In the same vein, it should be noted that no effort was made to teach English Language, the official language of Guyana. Therefore, one factor considered relevant for explaining differences in interaction practices is the variation in the implementation of the strategies advocated by the course. Ms Dass seemed to have participated less in the critical review processes to help her think about and explore the implication of language promotion.

By firmly following the content on home language in the classroom, Ms Dass took a potentially damaging approach to Creole usage. She claims that she no longer ‘corrects’ children’s use of Creole because she had learned it was not good practice. She notes, ‘Before training, I used to correct their Creole all the time, but now I allow them…. When we considered the play (The Trouble With Neketa), we realised how insulting it was to correct children’s Creole….’ Since the module on first language awareness was conducted mainly through the use of drama and role play, Ms Dass seems to have remembered the recommendations about language acceptance at the expense of those offered in theory-based components which offers advice to practitioners on ways to introduce English. Consequently, due to Ms Dass’ uncritical and non-reflective approach to some of the course content, the probability of the children learning to speak in English was reduced.

6. Discussion

Unlike my 2007 study which showed that Guyanese teachers used offensive comments to prevent children from using Creole [1], participants in the UG ECPD show some degree of sensitivity and thought about their approach and attitude to children’s use of Creole. The findings from this study have established how the interplay of feedback from tutor, taught components and reflective practice could produce changes in the pedagogical practices of ECD practitioners working in Creole speaking environments.

The notable differences in the performance of the two cases reported in this research paper could be attributed to variation in the implementation of the strategies recommended by the course. Ms Dass immediately implemented strategies learnt from the module, Working with Linguistically and Culturally Diverse Children. As indicated in the introduction of the article, this module specifically featured dramatic presentations to promote awareness of the images and impressions passed on to the children that contribute to the negative stereotyping of Creole. At the time of this study Ms Dass had not yet implemented aspects from content-based component on ‘good’ language development practices. This suggests that the content might not have been sufficiently explicit or practical to trigger easy implementation. Her vivid descriptions about the delivery of the module, Working with Linguistically and Culturally Diverse Children echoes the famous Chinese philosophy, ‘I hear [read] and I forget; I see [observe] and I remember; I do [practise] and I understand. Ms Dass did not remember much of the established theoretical and sociolinguistic principles given by the facilitator of the module but, from the experience of the dramatic presentation, she seems to have understood its benefits in the classroom context: ‘When we considered the play, we realised how insulting it was to correct children’s Creole….’

The observations of Ms Dass’ practices raises questions about effective course delivery; specifically, about ‘practice-based’ element as an important and necessary component of training. However, the overall findings suggest that this practitioner might need to participate in critical review to help her think about and explore her everyday classroom language experiences. Ms Caesar, the practitioner who engaged in constant practice, reflection on, and adaption of course materials demonstrated more conscious and engaging Creole and English dialogues. This practitioner performed interaction with initiative, adaptability and reflectivity. It might therefore the reasonable to conclude that Ms Caesar’s interaction practice fits the profile of ‘effective teaching and learning’, described by Hattie [7] in his meta-analysis of over 800 studies:
Teachers having a mind frame in which they see it as their role to evaluate their effect on learning [...] and this requires dedicated and passionate people (pp. 15-16).

Regardless of the level of at which the two ECD practitioners in the study performed, they both showed signs of passion and dedication in the implementation of new approaches to the use of Creole in the classrooms. The distinction in practitioners’ performance was principally marked by their ability to ‘evaluate’ effectiveness of the new approaches and ‘act’ accordingly.

![Figure 1. Model of effective ECPD](image)

Following the discussion on the practices of Ms Dass and Ms Caesar, it is reasonable to suggest that critical reflection and practice-focused activities are necessary features of effective ECPD training programme. The shaded area in the Model above suggests where ECD practitioners should be positioned if training is to have effective outcomes on their practice. Finally, this study has shown that when training and developmental materials target specific needs or are content-specific, outcomes might be favourable.

7. Conclusion

Specific components of the UG ECPD training programme have been identified as positive agents of support and change for practitioners’ interaction practice. The important role one tutor played in stimulating thinking about language promotion practice was highlighted. The role of simulation in affecting change to attitude in language acceptance has also been considered. In particular, the dramatic-based element seems to have had long-lasting effects on participant’s knowledge of interaction, their skills to engage with children, and their attitude towards the Creole language. The simulation component seems to have encouraged practitioners to think about possible ways of interacting with Creole in their physical early childhood settings.

When practitioners balance and incorporate the different pedagogical strategies promoted by the programme, changes appear to be much more pronounced. This suggests that more desirable outcomes of ECPD might be achieved by amalgamating different approaches to training. Ms Caesar’s Creole discourse episode shows how, collectively, course components can result in positive changes. But in situations where (for example, in the case of Ms Dass) changes in practice might deprive children from becoming competent user of English language, further training might be necessary for more positive outcomes. As indicated in the earlier study on practitioners approach to GCE in classrooms [1], ECPD training programme in Guyana should aim to promote:

*The recognition of GCE as a legitimate way of speaking, with English being viewed as a useful linguistic instrument for giving children access to traverse different socio-cultural environment, and not feel limited by their language abilities (p. 248).*

8. References


Session 49: Pedagogy

Title: Evaluation of the Effectiveness of an Interactive Optics Teaching Module in Enhancing South African Grade 11 Learners' Conceptual Understanding of Image Formation by a Convex Lens
(Authors: M. John, J.M. Molepo, M. Chirwa)

Title: Assessing the Potential of Worksheets as a Tool for Unearthing Teacher Trainees' Conceptions about Chemical Bonds
(Author: Ruby Hanson)

Title: Chemistry Teachers' Understanding regarding Students' Misconceptions
(Authors: Anam Ilyas, Muhammad Saeed)
Evaluation of the Effectiveness of an Interactive Optics Teaching Module in Enhancing South African Grade 11 Learners’ Conceptual Understanding of Image Formation by a Convex Lens

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Abstract

The research conducted for this paper evaluates the effectiveness of an interactive optics teaching module designed to enhance conceptual understanding by adopting a quasi-experimental pre-test – post-test design. One intact Grade 11 class in a selected school was chosen as the experimental group (N = 36) and another intact grade 11 class in the same school was chosen as the comparison group (N = 44). The data were collected from four relevant multiple-choice type questions in the questionnaire. The findings suggest that the practical experiment, supported by carefully-designed worksheets, worked significantly better than the computer simulation in improving learners’ conceptual understanding of image formation by lenses. The main contribution of this study lies in its authenticity in advocating that Physics education researchers and educators need to integrate technology and practical experiments appropriately into the traditional worksheet-based learning and teaching activities. Furthermore, the study recommends that practical experiments, if properly designed and implemented, can act as an effective approach to science teaching and learning.

1. Introduction

Many studies have explained that children come to school holding their own prior knowledge of many scientific phenomena. Such knowledge may be based on their daily-life experiences, interaction with peers and elders and so on. Not all such knowledge, however, is scientifically acceptable. Knowledge that is inaccurately acquired will simply lead to future learning being inaccurate [1], thus, it is important to assess the prior knowledge of learners and remediate the alternative conceptions, if any, before stacking up knowledge on any new scientific phenomenon.

According to [2], optics is one of topics that results in common student misconceptions in science. As a result, the learners’ understanding of optics and optical phenomena has been the study focus for many researchers all over the world [2,3,4]. Findings from different studies, at different times, and done in different parts of the world, have revealed many similar alternative conceptions. This shows that the conceptual understanding of optics and related phenomena do not vary much with time or geographical location.

Even though attempts have been made by different researchers in several parts of the world to assess learners’ prior knowledge regarding optical phenomena, not a single attempt in South Africa could be located by the researchers. Geometric optics is an important topic in the high school Physical Sciences curriculum of South Africa and Physical Sciences is one of the subjects in which learners perform very poorly in the Grade-12 (matric) examination. Efficient attempts, however, are not being made to investigate the prior knowledge of learners in Physical Sciences generally, and optics in particular. If meaningful improvement is to happen in education in South Africa in general, and in Physical Sciences in particular, careful measures must therefore be devised to make the teaching and learning of Physical Sciences more meaningful and fruitful. Even though traditional teaching methods are helpful to a certain extent, research has shown that traditional instruction is not very effective in overcoming certain conceptual difficulties [5].

The focus of this paper is on evaluating the effectiveness of a part of the interactive optics teaching module (which was meant for the larger version of the study) in enhancing learners’ conceptual understanding of the characteristics of the image formed by a convex lens. The study started with the identification of the prior knowledge of the sample, the development of an interactive optics teaching module, and, finally, testing the effectiveness of the teaching module designed.

2. Methodology

The study adopted a quasi-experimental pre-test – post-test, non-equivalent group design. One intact Grade 11 class in a selected school in the Mthatha District of the Province of Eastern Cape, South Africa was chosen as the experimental group (N = 36) and another intact Grade 11 class in the same school was chosen as the comparison group (N = 44); the sample thus consisted of a total of 70 learners.
learners. The school was conveniently chosen as the research site because of its accessibility to one of the researchers who was a full-time Physical Sciences educator at the same school (during the period when the research was conducted).

Among the seven Grade 11 classes in the school, the selection of the two intact classes for the research was conducted for a specific purpose, so purposive sampling was used in the selection of the participants because these two classes were taught by the same educator and belonged to the same subject stream.

The researchers used a questionnaire (which was primarily designed for the larger version of the study) as the pre-test (PrT) to collect the data regarding the participants’ prior knowledge about the characteristics of the image formed by a convex lens. The data were collected from four relevant multiple-choice-type questions of the questionnaire. The summary of the key concepts tested in the 4 items of the questionnaire is given in Table 1:

<table>
<thead>
<tr>
<th>QN</th>
<th>Key concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Role of the screen in the image formation</td>
</tr>
<tr>
<td>2</td>
<td>Role of the lens in the image formation</td>
</tr>
<tr>
<td>3</td>
<td>Image formed by a lens with a larger diameter</td>
</tr>
<tr>
<td>4</td>
<td>Image formed when the upper half of the lens is covered</td>
</tr>
</tbody>
</table>

After assessing the prior knowledge of the learners, the researcher designed an interactive optics teaching module aimed at enhancing the learners’ conceptual understanding of the characteristics of the image formed by a convex lens. The teaching module consisted mainly of the following parts:

1. A practical investigation using an optic bench supported by a properly-sequenced worksheet; and
2. A converging lens computer simulation [6], supported by a properly-sequenced worksheet.

The first part of the teaching module was designed to address the learners’ conceptual difficulties around the concepts represented by Questions 1, 2 and 4.

However, because of the lack of availability of convex lenses with two different diameters, the researchers designed the second part of the teaching module (to address the learners’ conceptual difficulties represented by Question 3) by replacing the practical experiment with a computer simulation.

The designed optics teaching module therefore consisted of multiple teaching approaches integrated into proper sequential order. While integrating different approaches, the researchers intended to fill the gaps which might have been created by the use of one method together with another method. Even though the researchers borrowed from the works of certain other researchers and educational practitioners (especially regarding the computer simulations), the researchers took great care to integrate these works with the researchers’ own works; an example being the worksheets for each activity.

One of the researchers presented the designed optics teaching module only to the experimental group (EG); the comparison group (CG) was taught using the traditional teaching method. While using the designed teaching module for the EG, the researchers made sure that the participants engaged with each other and with the educator, ensuring active collaboration at each stage of the learning-teaching process, thus reflecting the perspectives of Vygotsky’s assertions of social constructivism.

Soon after implementing the teaching module, the researchers administered the post-test (PoT) using the same questionnaire previously used for the PrT. The participants’ responses before and after the implementation of the designed teaching module were then compared to evaluate its effectiveness in improving learners’ conceptual understanding of image formation by convex lenses.

3. Results

The study explored several alternative conceptions the learners had held in terms of the roles that the lens and the screen play in the image formations and the characteristics of the image formed when a lens with a larger diameter is used and when a portion of the lens is covered. The effectiveness of the designed teaching module was tested by comparing the participants’ responses in the PrT and in the PoT. The participants’ responses in the pre- and the post-tests are given in Table 2.

In Table 2, scientifically-accepted responses are indicated in bold letters. It was noted that the participants from both EG and CG displayed correct understanding about the role of the lens in the image formation (Question 2) before and after the teaching module was implemented.

However, the participants in both the groups were found to have a poor understanding of the concepts tested in all the remaining three questions. Amongst the different responses, some of the major alternative conceptions identified in Table 2 are listed below:

- In the absence of a screen, no image will be formed (Question 1);
- When a lens with a larger diameter is used, the size of the image formed increases (Question 3); and
- When the upper half of the lens is covered, the upper half of the image disappears.

The PoT results showed dramatic improvement for the EG learners, especially in two aspects represented by Questions 1 and 4.

This is evident in Chart 1 which shows the percentage of the correct responses of the EG and CG during the PrT and PoT.
Table 2. PrT vs PoT comparison of the EG and the CG

<table>
<thead>
<tr>
<th>Qn</th>
<th>Response</th>
<th>EG (n=26)</th>
<th>CG (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PrT</td>
<td>PoT</td>
</tr>
<tr>
<td>1</td>
<td>No image is formed</td>
<td>23</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>An upside (inverted) image is formed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>The size of the image will increase</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>The size of the image will decrease</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will increase</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will decrease</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>No image is formed</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>An upside (inverted) image is formed</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>An upright (erect) image is formed</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The size of the image will increase</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>The size of the image will decrease</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will increase</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will decrease</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Other answers</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>No image is formed</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>An upside (inverted) image is formed</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>An upright (erect) image is formed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>The size of the image will increase</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>The size of the image will decrease</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will increase</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will decrease</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Other answers</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>No image is formed</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The upper half of the image will disappear</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>The lower half of the image will disappear</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will increase</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The brightness of the image will decrease</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Other answers</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

The EG learners performed well both in the PrT and PoT in Question 2. On the other hand, even though the CG performed better than the EG in Question 2 in the PrT, their performance dropped slightly in the PoT. The performance in Question 3 remained poor for both groups on both occasions.

4. Discussion of the findings

The interactive teaching module designed can be considered to be successful in enhancing learners’ conceptual understanding regarding certain characteristics of the image formed by a convex/converging lens. The findings indicated that the first part of the teaching module was effective in correcting learners’ alternative conceptions (Question 1, 2 and 4); however, the second part of the teaching module was not much effective in doing so.

Several attempts have been made by previous researchers to improve learners’ conceptual understanding regarding the optical phenomena. Some of them have been collaborative learning mediated by multimedia, computer-assisted learning programs [7], converging lens simulations [6], and conceptual change texts [2]. Tao [7] used computer-assisted learning computer programs to enhance learners’ conceptual understanding regarding image formation by convex lenses. It was claimed that such an approach was particularly helpful to students who were comfortable with peer collaboration and were prepared to engage intensively in the learning tasks (and with each other) and tried to test out their ideas on the multimedia CAL programs. A similar approach was tried by Bryan and Slough [6] focusing on the same topic, that is, image formation by convex lenses. The authors integrated computer simulations into their instructional practices and examined the effects of different simulations on students’ predictions and subsequent understanding of how images are formed by converging lenses.
specifically in relation to outcomes when portions of the lens or the object are covered. Their results indicate that changing the number of rays (depicted in the lens simulations) had little effect on student predictions, but the point (s) of origin of the rays did influence student predictions. Aydin [2] prepared conceptual change texts to eliminate misconceptions about “propagation of light”, “reflection of light” and “refraction of light”. Through a quasi-experimental approach, the study showed that the conceptual change texts were more effective than the traditional method of instruction in eliminating learners’ misconceptions about geometric optics.

The current study is in agreement with the previous literature in that conceptual change texts (similar to the sequentially-arranged worksheets in the present study) and practical experiments supported by such worksheets can work effectively in remediation of alternative conceptions / misconceptions; however, the computer simulations did not work well in improving learners’ conceptual understanding of the image formation by convex lenses.

5. Conclusion

Our research paper shows how effective the designed optics teaching module was in improving South African Grade 11 learners’ conceptual understanding of image formation by lenses. The quasi-experimental research design adopted in this study helped the researchers to compare the designed teaching module with the traditional teaching module by administering PrT and PoT to the EG and the CG. The findings that emerged from this study suggest that a variety of teaching strategies such as worksheets and laboratory experiment, when carefully integrated, can improve learners’ conceptual understanding of converging lens image formation. The hands-on and real-life experience which made possible in the laboratory experiments still dominate over modern technologies such as computer simulations in bringing about meaningful conceptual change among science learners. The findings from this study thus point to the importance of integrating practical experiments properly in the science learning and teaching process. In short, the optics bench practical experiment supported by the sequentially-arranged worksheets was found to be more successful in improving learners’ conceptual understanding of image formation by lenses than the converging lens computer simulation (even though it was also supported by worksheets of a similar nature).

6. References


Assessing the Potential of Worksheets As a Tool For Revealing Teacher Trainees’ Conceptions About Chemical Bonds

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Abstract

The conceptions held by undergraduate teacher trainees about basic types of chemical bonds are investigated in this paper. The research was carried out with 95 first year Chemistry education teacher trainees purposely chosen from two teacher training institutions. Participants worked on worksheets which showed figures of compounds with different kinds of chemical bonds after which their answers were scored and interpreted in order to understand the possible reasons behind their choices. Results from the activity indicated that more than 80% of the chemistry education trainees had vernacular and conceptual misconceptions about basic chemical bonding, which stemmed from their environment, text books and teachers. Some suggestions were made for more effective teaching approaches to enhance teacher trainees’ conceptual understanding of chemical bonds.

1. Introduction

Research in education, concerning students’ prior conceptions and how they influence further learning has become a very important issue for educationists and teachers in particular. A reason for teachers’ interest in uncovering and addressing students’ prior conceptions is because they tend to be deep rooted and pose obstacles to teaching and students’ acquisition of scientific concepts [1]. Some researchers are of the view that students’ prior knowledge is re-structured during lessons [2], though not as easy [1]. If one’s knowledge base is already faulty, it could result in further faulty reasoning and deepened conceptual misunderstanding. Chemical bonding is one topic that students’ have difficulty with but need as a prerequisite to understanding the behaviour of matter, and topics including chemical equilibrium, thermodynamics, molecular structure, and chemical reactions [3] in first year chemistry. According to Hanson, Amedeker, Oppong and Antwi [4], students’ understanding of many basic chemistry concepts is based on their ability to scientifically explain chemical bonding; thus, it is an essential ‘bridging’ topic.

Students’ interpretations about metallic, ionic, and covalent bonding have revealed prevalent and consistent misconceptions across a range of ages and cultural settings. Butts and Smith [5] reported that students were confused about covalent and ionic bonds. Peterson, Treagust and Garnett [6] investigated Grade-11 and Grade-12 students’ misconceptions of covalent bonding and structure and found that they did not acquire a satisfactory understanding of covalent bonding. Taber and Watts [7] also identified the idea of full outer shell heuristic as being of little help in discussing phenomena like bond polarity, hydrogen bonding, and van der Waals’ forces as it has limitations, such that overdependence on it could form the basis for alternative conceptions. Students have fuzzy ideas about polar covalent bonding and disregard the role of electronegativity in bonding [6]. This situation could arise when students are fixed in their own ideas such that their permanency cannot allow the acceptance of new but plausible ideas. Another problem that students have is visualising bonds as existing between central species and bonding atoms (inter bonding) but not that which exists between particles of the individual species (intra bonding).

Taber [8] investigated students’ misconceptions that deal with ionic bonding and found that students in their study overemphasised the process of electron transfer and used the notion of ion-pairs as molecules. They also employed the idea of valency inappropriately. Coll and Taylor [3] found that some students believe that a chemical bond is a physical entity while ionic compounds exist as discrete molecules. Undergraduate chemistry students have been known to hold misconceptions related to electronegativity, bonding, geometry, and microscopic representations as well [9].

Without doubt, chemical bonding is an essential, yet difficult concept for chemists. Thus, it is important to assess trainees’ levels of understanding in order to use their prior knowledge as a basis for teaching and remediation before they build up other concepts on faulty bases. Despite the widely understood notion that covalent bonding, polar covalent bonding, and ionic bonding are a continuum, chemistry educators [7] and textbooks [10] still present this information as three distinct
types of bonding. If the goal of chemistry is to guide students to build vivid authentic mental models of chemical phenomena, then using diagrams could be one route as it has the capacity to challenge students’ higher order thinking skills. It could enable them to build their imaginative powers as no contextual change text would. Worksheets adopt the constructivist learning approach and have been found to be useful. This study set to find out if Ghanaian teacher trainees have conceptual problems with their study of chemical bonding as reviewed literature purports, through the use of a simple diagnostic worksheet.

2. Purpose of the Study

This study focused on finding out if easily accessible and assessable diagnostic worksheets, which are novel in Ghanaian education, could be used as a tool to unearth trainees’ knowledge structures about chemical bonds.

The study was guided by two research questions.

1. What potential would worksheet activities hold for revealing teacher trainees’ conceptions about chemical bonding?
2. What conceptions about chemical bonds do trainees reveal through worksheets?

3. Methodology

The sample comprised of 95 first year chemistry education teacher trainees, who are representative of those taught with a traditional curriculum about bonding concepts as separate entities, from two teaching institutions with comparable admission criteria. The study focused on trainees because teacher education programmes are a reasonable place to start introducing new ways of diagnosing conceptual understanding. Institution A had 45 trainees while Institution B had 50 trainees in their first year chemistry class. These trainees were chosen because the topic of chemical bonding was taught at their level. A diagnostic worksheet which contained 8 models of elements and compounds adopted from the Royal Society of Chemistry (RSC) resource [11] was used to collect data about chemical bonding as it is standardised. The answered worksheets were scored, and analysed statistically (quantitatively) and interpretively (qualitatively).

3.1. Scoring

The diagnostic worksheet was marked over a total of 16 marks as each correct answer attracted two marks. Reasons for choices were not expected. However, answers were analysed and interpreted by the researcher. The chemical bonds expected to be identified from the diagnostic model were ionic, covalent, metallic, hydrogen, dipole-dipole and van der Waals forces. The diagnostic worksheet is presented as Figure 1.

![Diagnostic Activity Sheet-Spot the bonding](image)

Figure 1. Diagnostic Activity Sheet-Spot the bonding

Scores below 6 marks were classified as a demonstration of poor conception about chemical bonds. Scores between 6 and 10 (inclusive) were classified as partial conception, while scores between 12 and 16 (all values inclusive) demonstrated sound conception. The term ‘misconception’ was applied when at least 10 percent of the sample got their answers wrong and partial conception applied when only five (5) percent made wrong choices. According to Hanson and Oppong [12], if at least 10% of a given sample have difficulty understanding scientific concepts then they have alternative conceptions. Disregard for a percentage lower than 10 could allow many wrong concepts to be overlooked. Thus, the threshold level for acknowledgement of misconceptions and remediation was pegged at a level of 10%.

4. Results

Trainees’ responses were analysed into different levels of understanding and frequencies worked out for comparison and analysis. The scale of analysis for performance was based on a conceptual scale of 0 to 4 = Poor conception; 6 to 10 = partial understanding; 12 - 16 = sound conception. The general performance of both Institutions A and B are presented as Table 1.

The data from Table 1 shows that majority of trainees, 97% (Institution A) and 80% (Institution B) had poor and partial understanding of chemical bonding. Remediation would thus be required as more than 10% of the sample (that is 18) which is greater than the 4.5 (10%) for Institution A and
more than 10% (or 20 trainees) in Institution B scored less than half the expected mark required in the probe.

Table 1. General performance of trainees in Institutions A and B in percentage

<table>
<thead>
<tr>
<th>Score</th>
<th>Frequence (Inst A)</th>
<th>%</th>
<th>Frequence (Inst B)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>18</td>
<td>40.00</td>
<td>20</td>
<td>40.00</td>
</tr>
<tr>
<td>6-10</td>
<td>26</td>
<td>57.78</td>
<td>20</td>
<td>40.00</td>
</tr>
<tr>
<td>12-16</td>
<td>1</td>
<td>2.22</td>
<td>10</td>
<td>20.00</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

The item analysis for both institutions revealed that trainees in Institution B performed slightly better on the worksheets than those in Institution A. Ionic bonding models were easily identified, while those on covalency and van der Waals’ forces (VDF) were least identified. Pooled item analysis with the expected and wrong answers are shown for both institutions in Table 2. Datafor Institution B is shown in italics.

Table 2. Pooled item analysis for Institutions A and B (N = 95)

<table>
<thead>
<tr>
<th>Item</th>
<th>No. Correct</th>
<th>No. Wrong</th>
<th>Correct/scientific answers</th>
<th>Students’ wrong answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NaCl lattice</td>
<td>26 (y)</td>
<td>19 (43)</td>
<td>5</td>
<td>Ionic</td>
</tr>
<tr>
<td>2. H2SO4 molecule</td>
<td>15 (J)</td>
<td>20 (44)</td>
<td>7</td>
<td>Covalent</td>
</tr>
<tr>
<td>3. C2H4 molecule</td>
<td>19 (21)</td>
<td>26 (47)</td>
<td>30</td>
<td>Covalent</td>
</tr>
<tr>
<td>4. Cu (s) lattice</td>
<td>10 (J)</td>
<td>35 (35)</td>
<td>9</td>
<td>Metallic</td>
</tr>
<tr>
<td>5. HF molecule</td>
<td>30 (J)</td>
<td>15 (19)</td>
<td>9</td>
<td>Covalent; polar</td>
</tr>
<tr>
<td>6. H2O (l)</td>
<td>33 (y)</td>
<td>12 (12)</td>
<td>11</td>
<td>Covalent; polar; H-bonding; dipole-dipole; VDF</td>
</tr>
<tr>
<td>7. CO2 molecule</td>
<td>36 (y)</td>
<td>9 (9)</td>
<td>9</td>
<td>Covalent</td>
</tr>
<tr>
<td>8. O3(g)</td>
<td>27 (y)</td>
<td>18 (18)</td>
<td>8</td>
<td>Covalent; VDF; double bond</td>
</tr>
</tbody>
</table>

Table 2 shows the answers provided by teacher trainees. The number of wrong answers exceeded the 10% threshold limit for the requirement of remediaion. The F2 model, revealed the least wrong answer; yet, it represents as high as 20% wrong answers. The type of chemical bonds in items numbered 1, 5, 6, and 7 were also easily identified as compared to the bonds in items 4 and 8, where some wrong answers were stated. In some cases no attempts were made at writing bond types, as with copper lattice. More striking was the observation that only 5 trainees in Institution A got the type of bonding in aqueous sodium nitrate correct. They mostly wrote ionic, atomic, dative or metallic bond. Ionic bond appeared to be the most familiar chemical bond as 5 (55.5%) out of the 8 species were wrongly labelled as having ionic bonds.

In Institution B, 50% of species were also said to have ionic bond. Apart from liquid water, which was poorly answered (as did Institution A) items numbered 1, 2, 4, 5, 7, and 8 were answered correctly. Item 3 was fairly answered. An overview of performance shows that remediation would be required in accordance with Hanson and Oppong’s [12] reasons for acknowledging and remediating misconceptions.

Some identified implicit misconceptions were:

1. Sodium chloride contains covalent bonds
2. Equal sharing of electrons in covalency
3. Majority (55.5%) of compounds are ionic
4. Ionic bonding occurs in crystalline/hard compounds
5. Iodine lattice is metallic in nature
6. Copper lattice has no chemical bonds
7. Bonding in metals is ionic
8. Metals have no chemical bonds
9. Metals share electrons as in covalency
10. A high existence of the theory of ‘full shells’ or overemphasis of octet rule
11. Covalency in non crystalline solids
12. Non-progressive idea of periodic trends in magnitude on the periodic table
13. Inadequate understanding of electronegativity and its application
14. Existence of hydrogen bonds in oxygen

5. Interpretation of results

In this study, where a bond had significant polarity its description as polar, rather than covalent was accepted as correct. The term van der Waal forces was accepted if induced dipole and dipole forces; yet the general performance was low. Polar covalent bonding was accepted for items numbered 5, and 6, which were representations of hydrogen fluoride molecule, and water. Chemical bonding continues to cause difficulties for learners regardless the fact that it is taught from junior secondary school (age 12-14) and senior secondary school (age 14 to 17). Apart from ionic bonding which was identified correctly in a few instances, intermolecular, van der Waals forces, and metallic bonds were hardly identified. Even with allowances made for the acceptance of feeble interpretations of bond types,
more than 10% of the population in both institutions got less than half the answers correct.

Altogether, analysis of responses from both schools revealed that trainees had challenges dealing with chemical bonds. They also misinterpreted the term ‘lattice’. This could be due to the way that bonding is taught by teachers as they use discrete units cells of species to illustrate bonding and not lattices. Ionic lattices are introduced much later to chemistry major students, well after the concept of discrete chemical bonding is ingrained. Some Ghanaian chemistry textbooks present the image of matter as if they were discrete entities. This observation about inappropriate presentation of matter and its behaviour in textbooks conforms with what Bergqvist, Dreschler, De Jong and Rundgren [10] also found in some european chemistry textbooks. Trainees were oblivious of the variations in electronegativities of species in covalent bonds as well as the fact that large differences in electronegativities could result in polarity. The interpretation is that trainees hold misconceptions about trends in periodicity, as well as relationships that could be drawn from them to facilitate their knowledge about chemical bonds. Analyses of their choices suggested that they could not distinguish between ionic and covalent models nor forces. This observation correlates that made in studies by Taber and Tan [13].

Another observation was that trainees appeared to assign ‘ionic’ and ‘covalent’ bonding indiscriminately to most of the compounds to the neglect of other bond types. Sodium chloride was easily associated with ionic bonding as it is a common example that teachers use to illustrate the concept of electrostatic or ionic bonding. Trainees might have imbibed the bonding in NaCl by route. Butts and Smith [5] made a similar observation in their study. Generally, trainees exhibited sporadic cognition of chemical bonds. It was obvious that common sense ideas and pieces of disciplinary knowledge were combined in idiosyncratic ways to make sense of phenomena presented, as no logical sequential pattern was found in the answers trainees provided.

The concept of ionic bonding was over-emphasised (though wrongly) for bond types. Neither were those for covalency or other bonding principles applied appropriately. Besides, the diagrammatic presentations and states of compounds which could have served as clues were ignored. For example, the chemical bonding in NaCl was wrongly identified. Trainees considered the bond type between the sodium and chloride ions separately. In one of the institutions, metallic bonding was assigned to NaNO\textsubscript{3} in an extended or follow-up study. Metal to non-metal bonding is not a bond type taught at the trainees’ level and could not have been assumed. Again, the confusion might have arisen from the presence of ‘Na’ and the fact that students associate Na with metallic bonding.

Scientific language was identified as yet another challenge for trainees. Analysis of types of models labelled as ‘lattice’ and ‘aqueous’ revealed trainees’ vernacular and conceptual misconceptions. The states ‘lattice’, ‘liquid’ and ‘aqueous’ were not well differentiated, possibly due to language barriers. In the Ghanaian language there is no distinction between the terms liquid and aqueous. Nevertheless, these trainees were expected to have risen above this vernacular misconception as the terms are used quite often in secondary school; enough for them to build authentic conceptual frameworks about them. Diamond and copper lattices were considered as if they were unit cells or discrete entities [5]. The issue of inappropriate instructional strategies, teachers’ misconceptions, and text books came up strongly as militating factors to students’ abilities to build authentic scientific frameworks. The concept of solids is not well explained in most textbooks. A solid species could have covalent network, polar covalent, ionic, hydrogen, or van der Waals forces. Yet, most trainees chose to assign ionic and metallic bonds to solids which appeared to be ‘hard’ or had an apparent crystalline form. Only a handful of trainees assigned covalent bonds to solids. Covalency was attributed to non-solids. This could be the reason why diamond was wrongly labelled as ionic and metallic, instead of covalent, as it was perceived as a solid. This revelation implies that bond types were associated with nature (forms) of substances. Hardness was wrongly associated with ionic and metallic bonding. Trainees were not familiar with the existence of multiple bonds in some covalent compounds. Neither did they associate multiple bonds with covalency only. The few trainees who did, could not could not name the multiple bonds as comprising of sigma and pi bonds. The word ‘covalent’ was misspelt ‘covant’ by a few trainees and sigma as ‘zigma’ - teacher misconceptions.

The analysis of trainees’ answers clearly showed that they had difficulties imagining the possible structures of the given species. For them, there was no distinction between a copper atom and a copper lattice. It was therefore not surprising that they failed to identify differences between aqueous and solid sodium nitrate. In order for them to build proper models of the different chemical bonds, remediation involving computer animations or simulations of the various bond types would have to be employed in subsequent teaching and learning process.

Further, analysis of results in this study showed that though trainees appeared to know about the concept of polarity, they did not associate it with electronegativity. They demonstrated very little application of knowledge about periodic trends and their role in chemical bond formation. Several
trainees, like students in Nicoll’s [9] study appeared to confuse the definitions of ionic and covalent bonding. They saw ionic bonding as sharing of electrons. The bonding in metals and ionic compounds appeared a challenge, possibly because of the ‘cations in a sea of electrons’ theory. They presumed metals to be ionic with attractions between negative and positive ends.

It was obvious that teaching without models provide ample opportunity for the development of formal misconceptions. This was identified in trainees’ interpretations of the words ‘lattice’ and ‘aqueous’. The presence of misconceptions among trainees revealed fragmented understanding of abstract concepts. Generally, students who have strong misconceptions resist modifying their pre-existing ideas and the interpret the new acquired knowledge using their preconceptions, even after learning the correct concepts in the classrooms. Thus, new procedures that make students acknowledge the weaknesses in their own knowledge structures would have to be adopted. This is important as investigating students’ misconceptions reveals insights into their thoughts and enables teachers to see and adopt new ways of helping them re-construct their own ideas [1, 2].

Results of this study provided adequate evidence to support literature[3] that students hold misconceptions about chemical bonds. It also revealed that mixed and naïve conceptions which have no scientific grounding were applied in assigning chemical bonds to models. These weaknesses did not follow any particular pattern for the identification of chemical bonds and suggested idiosyncrasy in attitude and cognition. Models were wrongly classified upon wrong basis of crystalline solids. The different types of diagrams (models) were purposely employed so that trainees would have the chance to interpret diverse representations of chemical species. Between the two institutions, trainees had as high as an average of 85% misconceptions; higher than the level required for remediation. It was noted that they had no conceptual basis for identifying bond types in liquids and solids; an indication of their alternative conceptual framework about chemical bonds. In all, 14 unscientific conceptions were identified. Instructional strategies that will expose them to systematic visual processes of chemical bond formation is highly recommended. These findings could contribute to educators’ understanding of some naïve ideas that students possess. This would help them to select appropriate diagnostic and instructional methods.

6. Conclusion
The diagnostic probe provided a quick and easy-to-administer tool that enabled the provision of results in a readily accessible form. It had the potential to unearth weaknesses in trainees’ understanding of chemical bonds better than could have been identified through multiple choice items and non-visual modes.

7. Recommendations
It is important to develop diagnostic instruments that identify misconceptions about chemical phenomena as well as improve curricular resources and teaching approaches. A properly designed tool with concise and clear information could provide enough structure to diagnose students’ real problems. Simple and objectively scored diagnostic assessment tests that could be used in the classrooms should be developed by teachers to determine the level of their students’ understanding and misconceptions. Before teaching a concept, such as chemical bonding, teachers should be able to go through literature to find out common misconceptions that students generally bring to class and best teaching methods to employ. This would help teachers to design better learning environments that help to learners develop concepts scientifically otherwise there would be a gap between research and teaching, and students would pass from grade to grade without fully understanding concepts.

7.1. Implication for instruction
Activity sheets could be developed at conceptual levels for other chemistry topics for which students’ conceptions are faulty. Teachers and curriculum developers could design lessons or worksheet for other topics in chemistry by incorporating several other activities and sequenced questions. Variety of teaching methods should be integrated in classroom lessons so that students become intuitive and critical thinkers.

8. References
[5] B. Butts and R. Smith, 'HSC chemistry students' understanding of the structure and properties of molecular


Chemistry Teachers’ Understanding regarding Students’ Misconceptions

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Abstract

Misconceptions are the obstacles in students’ learning. Teachers play a major role in the learning of the students. Therefore, teachers should be aware of the nature of misconceptions and possible remedies to mediate the misconceptions. The present qualitative study was designed to investigate the chemistry teachers’ understanding regarding students’ misconceptions. The findings of the study will contribute towards the learning community and add up to the existing body of literature. It would be beneficial for the curriculum developers of teacher educators. It will also be advantageous to teacher trainers. The sample included 15 chemistry teachers who were selected purposively. Semi-structured interview was used as a tool for data gathering. The interview transcripts were transcribed after thematic description. The results revealed that most of the teachers understand the terminology of misconceptions. However, they do not possess the knowledge about the sources of these misconceptions and techniques to rectify them. In addition, the teachers do not consider the possible misconceptions that could generate from their teaching. On the basis of the findings, it is recommended to incorporate the techniques required for the mediation of misconceptions in the curriculum for teacher educators.

1. Introduction

Misconceptions are the ideas held by students which are not scientifically accepted. In the words of Morgil, Seyhan and Secken, misconceptions are false or nonscientific thoughts or knowledge of the students about a specific problem and are caused mainly by their misunderstanding of the subject [1]. Misconceptions are hurdles in the meaningful learning of the students. Misconceptions are those conclusions which are not acceptable, but they appear quite acceptable to those who have successfully manipulated the false concepts to fit into existing framework. The factors causing the misconceptions are personal experience, school teaching, social environment, culture, textbooks and teachers [2] [3]. Teachers plays very important role in the meaningful learning of the students.

Past researcher has focused on the awareness of misconceptions by the elementary science teachers [12]. The research has to be done on the content specialist teacher who teaches probably the same lesson multiple times in one day. According to Chiu, chemistry is considered as difficult subject among other science subjects and students experience many misconceptions in this subject [13]. So, due to this reason chemistry is selected for the research.

The new knowledge should be related with the students’ prior knowledge for the meaningful learning. The teaching plays a main role in the meaningful learning of the students. So, the teachers should be aware of the misconceptions that students might hold. The teacher will tailor the teaching strategies which would be helpful in reorganizing students’ knowledge frameworks for new learning. Thus, having the awareness about the pre-knowledge of their students, will be beneficial in the meaningful learning of the students. It is important to explore the teachers’ awareness about students’ misconceptions to inform educators. Atom is the fundamental concept of chemistry and if students have misconceptions about fundamental chemistry concepts then they will certainly have misconceptions in complex chemistry topics. As mentioned earlier that teachers’ awareness regarding misconceptions in chemistry play an optimal role in the learning of students. In view of the above discussion this study is aimed at investigating the understanding of chemistry teachers regarding students’ misconceptions on the basis of following research questions:
1. What do the teachers understand relating to the concept of prior knowledge of students and misconceptions?
2. What are the teachers’ believes about the sources of misconceptions among the students?
3. What is the teacher awareness about the common misconceptions relating to the topic of atom existing in the research literature?
4. What are the teaching techniques they use to encounter the misconceptions?
5. What are the sources they use for preparations in advance of the class?

2. Literature Review

Misconceptions are resistant to instructions because everyone used to construct knowledge that fits into their experiences. Schmidt noted that once misconceptions about the topic are formed, it will subsequently interact with further learning of the students [4]. Novel concepts cannot be learned by the students, if they already have misconceptions about the fundamental concepts [4]. Misconceptions are often deeply held, largely unexplained and strongly defended by students.

The alternative conceptions are the obstacles in meaningful learning. Literature review reveals that not only weak students have misconceptions, but there are a wide range of areas where pupils commonly misunderstand the chemistry they are taught in class. Students come to schools having some pre-concepts in their minds which later on develop into misconceptions. Student’s misconceptions have their origins in a diverse set of personal experiences. Students’ alternative ideas are sometimes so ingenious that they cannot be easily invented and their invention requires much more effort than simply learning the conventional ideas that are taught in the class [5]. The misconceptions are permanent and cannot be changed or corrected easily [1] [4]. Simply telling the students that their concept is incorrect is not sufficient.

Misconceptions are the fundamental concepts (e.g. atoms and molecules) will hinder the advance learning in chemistry [6]. The misconceptions about fundamental chemistry concepts will lead towards the further misconceptions in advance chemistry topics. Students are not blank slates when they came to study chemistry [7]. They have previous understanding, perceptions and background knowledge about chemistry which may affect understanding of chemistry concepts.

The teachers play a major role in the meaningful learning of the students [2] [8]. While, students can hold the same misconceptions that their teachers hold [2] [9] [10] [11]. Numerous researches; explored that teachers are the major cause of misconceptions among students [2] [8]. Therefore teachers’ awareness regarding the misconceptions should be explored.

3. Methodology

A qualitative research design is used in this study. This study aims at investigating the teachers’ understanding regarding misconceptions in the students, so the qualitative research design is the most appropriate for the study.

3.1. Sample for the study

The purposive sampling technique was utilized for the study. The sample consists of the chemistry teachers. The sample size was 15.

3.2. Instrumentation

The researcher had selected the interview as a tool for data collection. A semi-structured interview was developed for the purpose of data collection.

The researcher herself collects the data. Most of the interviews were audio taped with the consent of the interviewees. The interview questions were formed through reviewing the existing literature on the misconceptions. The instrument was validated through the expert’s opinion. The instrument was pilot tested on the pre-service teachers to analyze the understanding of the interview questions by the participants. It was improved after pilot testing.

3.3. Data Analysis

The semi-structured interviews were coded initially into the two main categories which were “understanding about misconceptions” and “teaching strategy and misconceptions”. The sub-themes relating to the theme “understanding about misconceptions” are: definitions of misconceptions by the teachers, sources of misconceptions and examples of the students’ misconceptions are. Whereas, the subthemes relating to the theme “teaching strategy and misconceptions” are: planning the instruction and instructional techniques to address student misconceptions.

4. Results

This section presents the results revealed through the analysis of data. This study was designed to investigate the chemistry teachers’ understanding about the misconceptions. The data were collected from teachers who have experience in teaching of chemistry. Semi-structured interview was conducted by the researcher. After the data collection, data was analysed using the thematic analysis technique by the researcher. Different opinions of teachers were obtained to investigate the awareness of students about the misconceptions among students.
The responses of the teachers and their interpretations in respect to the different themes are presented in the following section.

4.1. Theme: Understanding about misconceptions

4.1.1. Definitions of misconceptions by the teachers. Misconceptions are those beliefs which are not accepted scientifically [17]. The 20% of the interviewees were not familiar with notion of “misconceptions” and subsequently they were unable to define misconceptions.

Most of the teachers (80%) gave the definition of misconceptions. But, those definitions were not much clear. A teacher said, “When students do not understand a concept then it is misconception”.

The teachers interviewed associated the definition of a misconception to the nature of the chemistry subject “Misconceptions are the confusions that students might have due to its abstract nature. They perceive that they had understood the concept, but they have the incorrect understanding of it”. They were not aware that the student misconceptions arise from previous knowledge and experience.

4.1.2. Sources of Misconceptions. The sources of misconceptions were explored by interviewing the participants are presented in the Figure 1.

![Figure 1. Sources of misconceptions](image)

Most of the teachers believes parents and peers as the source of misconceptions. Moreover, about half of the teachers said that electronic media (e.g. cartoons) is a source of misconceptions. Only one third of the teachers have a belief that students own mental structure can be the source.

4.1.3. Example of the students’ misconceptions. One third of the teachers were not able to give any example of misconceptions relating to the fundamental concept of atom. Some teachers’ examples clarified that the teachers are themselves confused about the concept of misconceptions and misunderstanding.

4.2. Theme: Teaching strategy and Misconceptions

4.2.1. Planning the Instructions. The teachers do not consider misconceptions while planning for their instructions beforehand the class. When the teachers were asked the reason for not considering misconceptions, most of the teachers replied that they can “cope up with the situation because of their experience”.

4.2.2. Pedagogical Strategies to Tackle with Student Misconceptions. The pedagogical strategies utilized by the teachers to address misconceptions were explored.

<table>
<thead>
<tr>
<th>Instructional techniques</th>
<th>Response percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some form of investigation or experimentation</td>
<td>33%</td>
</tr>
<tr>
<td>Inquiry based teaching</td>
<td>60%</td>
</tr>
<tr>
<td>Not any method special</td>
<td>27%</td>
</tr>
<tr>
<td>Not any instructional technique could mediate a Misconception</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 1 summarizes the response percentage of the teachers in terms of pedagogical strategies to tackle with student misconceptions. One third of the teachers said that some sort of investigation or experimentation could be utilized to address the misconceptions. They state that hands-on activities can be utilized to mediate the misconceptions. About 60% of the teachers said that inquiry based teaching can adopted to correct the misconceptions. They state that the questioning answering method is very viable measurement for encouring the misconceptions. About 27% of the interviewees answered that the scientific explanation could mediate the misconceptions and any special method is not required for this.

Moreover, 20% of the teachers replied that instructions could not mediate the misconceptions, rather students are themselves responsible for the learning. One of the teacher responded “the students’ internal curiosity or interst in the subject is the only factor that can eliminate the misconceptions”.

5. Discussion

The textbook is the major source utilized by biology teachers in America [14]. In Pakistan too, science teachers, rely solely on textbooks for the appropriate content materials that satisfy the
requirements of the science. Textbooks are the only learning materials available and used in most Pakistani schools. So, it is essential for the teachers to know that textbooks are sources of misconceptions. There are studies that justify the use of scientific technology tools by teachers in order to engage students and assist them in overcoming basic science misconceptions, or in understanding abstract ideas through concrete examples or models [6] [13] [15]. Teachers are unaware of this. Teaching aids may be used with students to overcome science misconceptions [16].

6. Conclusion

Most of the teachers are not familiar with the misconceptions. Some teachers misinterpret or misunderstand the concept of misconceptions. They state the sources of misconceptions are students’ themselves, parents, teachers and peers. They are unaware of textbook as a source of misconception. The teachers are lacking in the catering of misconceptions while planning the lessons. Teachers should utilize innovative teaching methods with the students to mediate the misconceptions.

Based upon the above conclusions it is recommended that:
1. Subject matter knowledge is an important predictor of student knowledge but the teacher must have the knowledge of misconceptions that the students might hold to maximize the effect of their teaching. Teacher trainers should incorporate the techniques required for the mediation of the misconceptions in the curriculum for teacher educators.
2. Teacher education programs should equip their teachers with the essential capabilities of continuously identifying their students’ misconceptions and implementing remedial instructional strategies.
3. Pre-service and in-service teaching programs should emphasize the importance of identifying and mediating misconceptions among the students and provide opportunities for pre-service and in-service teachers to practice these strategies under the supervision.
4. Seminars and workshops should be organized for the in-service teachers to make them aware about the misconceptions, origin of misconceptions and techniques utilized for encountering the misconceptions.

7. References


Many thanks for your participation and we hope to see you next year...!

Canada International Conference on Education (CICE-2018)
University of Toronto Mississauga, Canada
June 25-27, 2018

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Have a great trip back home....!!!