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EDITED BY SI FAN, THAO LE, QUYNH LE, YUN YUE

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Innovative Research in a Changing and Challenging World

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Conference proceeding
International Conference: Innovative Research in a Changing and Challenging World
Si Fan, Thao Lê, Quynh Lê, Yun Yue, Editors.
Helen Lu, Joanne Sin Wei Yeoh, Yongwei Tu, Assistant editors.

All work contributed to this book is new, previously-un published material. The views expressed in this book are those of the authors, but not necessarily of the publisher.

Preface

On behalf of the Conference Committee and the editorial team, we would like to express our warmest greetings and profound appreciation of the contribution of the conference delegates to the *International Conference: Innovative Research in a Changing and Challenging World* in Phuket, Thailand on 16-18 May 2012. The conference was well attended by over 150 international delegates from over 30 universities. It has received enthusiastic participation from many parts of the world: USA, UK, Belgium, Hungary, Turkey, South Africa, Singapore, Vietnam, China, Cambodia, Indonesia, Philippines, Australia, Malaysia, Middle East countries, and friendly Thailand where the conference was held.

The Conference delegates brought to the conference not only their research expertise and achievements but also their linguistic and cultural backgrounds which have greatly enhanced the interdisciplinary and multicultural discourse of an international conference. They have also brought back to their universities and home countries the fondest memories of the conference atmosphere and the tremendous hospitality of the friendly people of Thailand. This is not just another research conference. Its aim goes beyond the academic research discourse. It is an opportunity to humbly contribute to the enhancement of global co-existence.

While traditionally research has been rigidly confined to a single academic discipline, this book promotes diversity and unity in research on an interdisciplinary basis. It is a collection of conference proceeding peer-reviewed papers which present the key issues in interdisciplinary research around the world.

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- Conducting research in an intercultural context;
- Competing discourses of research;
- Research methodology issues;
- Challenges in conducting research in an interdisciplinary context;
- Language, literacy and communication in educational research;
- Health and environment issues in research;
- Science education research;
- Challenges to translating theory into research;
- Ethical issues in conducting research;
- Cognitive and affective dimensions in research;
- Research and social empowerment;
- Management issues in research;
- Innovative ideas and practices in educational research;
- Cultural and linguistic issues in conducting research;
- Technologies: new frontiers in research;
- Discourse analysis and critical discourse analysis in research; and
- Research and globalisation.

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Keynote abstracts

Keynote address 1– Intercultural research: A paradigm of planes

Dr Sivanes Phillipson

Monash University, Australia

ABSTRACT

Intercultural research is prevalent in many contexts, however it is one the most difficult research to pursue. Even at the basic level, defining intercultural as a multilayered interaction of culture and history initiates a conundrum of complexities associated with this research. Furthermore, any description and explanation that we must make in response to questions of intercultural phenomenon requires an acute examination of the processes of such phenomenon. As a possible way forward, I propose Lev Vygotsky's genetic-analysis method, which demonstrates that research at the cultural and historical level happens at two planes – the social plane and the person plane. The social plane lends the initial lens to the cultural layers that show the intricate webs of interactions between persons within social and historical institutional structures, whereas, the person plane pulls the researcher into the internal state and mind of the person through the use and engagement with cultural tools, and socially and culturally significant persons. Rooted within and between the two planes are multilayer of processes. These planes and the processes can become the focus of individual exploration and analysis of a whole system of process with the recognition that they are fundamentally fused and complementary. Such an approach gives researchers an opportunity to move beyond the dichotomy of the individual and the environment in an intercultural research context.

BIOGRAPHY

Dr Sivanes Phillipson is Senior Lecturer at Faculty of Education, Monash University Peninsula Campus and formerly an assistant professor in the Department of Education Studies at the Hong Kong Baptist University. She teaches in the broad area of educational psychology, classroom pedagogy and gifted education. Trained as an English teacher, Sivanes obtained her PhD from University of New England (Australia). Her research interests include the synthesis of structural models of academic achievement in relation to parental involvement and expectations. Sivanes has been awarded a number of research grants, resulting in research publications in books and many international peer reviewed journals, including Educational Psychology. Sivanes is the co-editor of Talent Talks, official newsletter of the International Research Association of Talent and Development. With Prof Wilma Vialle, she is co-editor of Special Issue of Talent Development and Excellence Journal. She is also a member of the International Society for Cultural Activity Research, American Psychological Association (APA) and Association for Psychological Science (APS). Her latest project was a colloquium at the end of 2011 that resulted in a book entitled Constructing Educational Achievement: A Sociocultural Perspective due to published by Routledge Education by end of 2012.



- Phillipson, S. N., Phillipson, S., & Poon-McBrayer, K. F. (in press) An evaluation of the usefulness of video recordings in measuring the performance of student-teachers. *The Asia Pacific Journal of Education Researcher*.
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Keynote address 2– Hegemony, empowerment and challenges in a global research discourse

Dr Thao Lê

University of Tasmania, Australia

ABSTRACT

Globalisation has permeated various domains, personally, socially and culturally. It is like a mighty river increasingly swamping the earth and presumptuously turning the culturally diversified world into a global village. While there are numerous movements and efforts to ensure that social justice and cultural respect are upheld, and peaceful co-existence among global villagers is cultivated, there are also waves of globalisation driven by commercialisation, self-interest and cultural ignorance or arrogance which deprive the global villagers of their cultural dignity, empowerment and meaningful interaction. This phenomenon in its dualistic manifestations has also taken place in the global research discourse.

Globalisation has become a social phenomenon and it has shaped the destiny of many people and countries. From the humanistic perspective, it cultivates both collaborative interaction and cultural understanding and mutual respect. This is the spirit underlying the existence of a number of world humanitarian organisations such as the Red Cross, UNICEF, and Médecins Sans Frontières. In education, globalisation opens many gates for students and academics of different countries to interact; particularly with the growing power of computer technologies, the spirit of education 'sans frontières' has emerged in different discourses. The virtual world co-exists with the real world. However, globalisation also has its dark side. Hegemonic globalisation in the research discourse can be contaminated by profit-driven agenda particularly when internalisation of education is primarily viewed as an industry. Heavy emphasis is placed on reputation building, profit making, and power control. Ironically It still operates on the pretext that the world is a global village where some privileged villagers are more valued than others.

BIOGRAPHY

"Once upon a peaceful day, I was born, long time ago. my mother told me that when I started to go to school at the age of childhood innocence, my country was crazily divided into two parts by powerful people in Geneva in 1954 . Like an unlucky star, my home province was chosen to be the place of political demarcation. From then, people in my village were like lost birds without a sense of direction. War and peace have danced as a tune in the stream of my life"
(T.L)



Dr Thao Lê completed B.A in English linguistics at Saigon University in 1969. With a special interest in ethnography and an enthusiasm of a young graduate, he moved on to undertake a research Masters in Jarai, a highland minority language in Central Highlands of Vietnam. However his dream of living with culturally isolated mountain people as a part of his research fieldwork was dashed due to the fierce war taking place throughout Vietnam at that time.

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Finally in 1970 Monash University gave him a new direction. Like a lost bird, he started to learn to fly again in the far-away horizon of Melbourne where he gained M.A and PhD in theoretical linguistics.

Thao Lê was offered a lectureship at the University of Tasmania in 1974 and has been teaching in the Faculty of Education till now. He has held various positions and played important roles in the development of the University such as: Senior Lecturer, Assistant Dean, Director of the Masters Program, Graduate Research Coordinator and Associate Dean (Research). Currently, he is lecturing in postgraduate courses and supervising eighteen research students. He was awarded: University of Tasmania's Teaching Excellence Award and University of Tasmania's Award for Excellent Contribution to Graduate Supervision and Research.

Thao Lê has been invited to be a keynote speaker at international conferences in Phuket, Lisbon, Iloilo, Paris, Penang, and Istanbul on educational research, globalization, applied linguistics and computer-supported education. His new research books are:

- Lê, T. & Lê, Q. (in press): *Conducting research in a changing and challenging world*. New York: Nova Science Publishers.
- Lê, T. & Lê, Q. (2011). *Technologies for enhancing pedagogy, engagement and empowerment in education: Creating learning-friendly environments*. Pennsylvania: CGI Global.
- Lê, T. & Lê, Q. (2011). *Linguistic diversity and cultural identity: A global perspective*. New York: Nova Science Publishers.
- Lê, T. & Le, Q., Short, M. (2010). *Language and Literacy Education in a Challenging World*. New York NOVA Science Publishers.
- Lê, T. & Le Q. (2009). *Critical Discourse Analysis: An interdisciplinary perspective*. New York: Nova Science Publishers

Keynote address 3– Researching across boundaries

Professor Ian Hay

University of Tasmania, Australia

ABSTRACT

This presentation reviews research conducted by the author over the last 10 years within the theoretical framework: researching across boundaries. The research reviewed has an educational focus, but it also explores a range of designs and researched methods. The presentation supports the notion that to be an effective researcher across boundaries the researcher needs to perceive the research as multi-dimensional and multi-purposeful and able to be translated to different end users. Crossing boundary researchers need to welcome difference, respect others, and respond to the opportunities when boundaries are crossed.

BIOGRAPHY

Professor Ian Hay is the Dean of the Faculty of Education, University of Tasmania, which he was appointed to in 2007. Before coming to UTAS, he was Professor and Head of the School of Education, University of New England. He has also held Associate Professor positions at the University of Queensland and Griffith University. Professor Hay has published more than 100 book chapters, refereed journal articles, reports, and other articles in a range of international and national peer review publications. As a chief investigator, he has been awarded competitive research funds in excess of 1.25 million dollars, and has supervised some 20 higher degree research students. His main research interests are in the domain of students with literacy and academic difficulties, the role of motivation in learning, and students' cognitive development. Professor Ian Hay and his research team have just been granted a major ARC research grant for four years to examine the factors that influence student retention in schooling beyond the compulsory years in rural, regional and disadvantaged communities. The goal of the project is to enhance the quality of education for a diverse population of students.



Selected recent publications:

- Hay, I., & Ashman, A.F. (in press). Self-concept. In R. J.R. Levesque (Ed.), *Encyclopaedia of adolescence* (pp xx xx). New York: Springer Publication. Hay, I., Fielding-Barnsley, R. (in press). Social learning, language and literacy. *Australian Journal of Early Childhood*.
- Hay, I., & Woolley, G. (2011). The challenge of reading comprehension. In T. Lê, Q. Lê & M. Short (Eds.), *Language and literacy in a challenging world* (pp. 123-136). New York: Nova Science Publishers.
- Hay, I., & Fielding-Barnsley, R. (2011). Responding to the challenge of transiting children into effective literacy. In T. Lê, Q. Lê & M. Short (Eds.), *Language and literacy in a challenging world* (pp. 209-222). New York: Nova Science Publishers
- Simmons, N., & Hay, I. (2010). Early adolescents' friendship patterns in middle school: Social-emotional and academic implications. *Australian Journal of Educational and Developmental Psychology*, 22, 59-69.

Keynote address 4– Researching the rapidly changing communities that schools serve: A teacher’s job?

Professor Peter Freebody, Dr Kelly Freebody

University of Sydney, Australia

This presentation will raise the need for the routine, ongoing conduct of research into communities as an integral element of teacher preparation and school planning. This point will be exemplified through a report of a project, supported by the Priority Schools Program, Department of Education and Communities, New South Wales, Australia. The project involved interviews and observations in a dozen rural, suburban, and urban schools selected on the basis of the variety and intensity of the challenges they faced from the rapid changes going on in the communities around them. It also involved a series of community-based interventions, adaptations of Design-Based Research, on the part of the teachers and school leaders on these sites, in collaboration with the researchers. The challenges the interventions addressed included: new levels of complexity of the linguistic and cultural setting for Australian education; new extremes in socio-economic status; the clear, dramatic, and ongoing shortfall in quality educational provision to Aboriginal students and communities; heightened expectations in curriculum complexity and extension of school-leaving age; schools’ and individual teachers’ increased accountabilities in terms of standardised test-scores; and increased expectations on teachers for innovation and the local adaptation of curriculum goals and processes. Findings address the issues of enhancing the amount versus the kind of community involvement, the growing intensity of communities’ beliefs about the significance of schooling in the lives of their youngsters, and teachers’ awareness that they occupied a distinctive position in the development and maintenance of the communities they served. Conclusions are also drawn about the larger methodological and conceptual point that researchers, like teachers, need to have a keen sense of the possible consequences for communities of socio-economic disadvantage and exclusion on levels of co-operation versus competition, stability versus volatility, and civility versus distrust and hostility.

BIOGRAPHY

Professor Peter Freebody is a Professorial Research Fellow in the Faculty of Education and Social Work at The University of Sydney. He is a Fellow of the Academy of the Social Sciences in Australia. His research interests include literacy education, educational disadvantage, classroom interaction and research methodology. He has published widely in these areas including in international handbooks and encyclopedias. He has served on several Australian state and national advisory groups in the area of literacy education and curriculum design. He was evaluator of the Australian national on-line curriculum initiative conducted by the Australian Curriculum Corporation, and a co-founder of the Centre for Research in Pedagogy and Practice at the National Institute of Education, Singapore. He is currently a member of the New South Wales State Ministerial Advisory Group for Literacy and Numeracy, the Australian National Literacy and Numeracy Expert Group and the International Reading Association’s Literacy Research Panel.



Conference proceeding

International Conference: Innovative Research in a Changing and Challenging World

Recent publications include:

- Freebody, P. (2010). Socially responsible literacy education: Toward an 'organic relation' to our place and time. In F. Christie and A. Simpson (Eds.), *Literacy and Social Responsibility: Multiple Perspectives*. London: Equinox. (pp. 40-55).
- Freebody, P. (2010). Research methods in teaching and learning the English Language Arts: Methodological choices and policy. In D. Lapp & D. Fisher (Eds.), *Handbook of Research on Teaching the English Language Arts*. NY: Routledge. (pp. 364-369)
- Freebody, K., Freebody, P. & Maney, B. (2011). Relating schools and communities in times of diversity, volatility and rapid change. In D. Bottrell & S. Goodwin (Eds.) *Schools, Communities and Social Inclusion*. London: Palgrave, (pp. 66-79).
- Freebody, P. & Freiberg, J. (2011). Teaching and learning critical literacy: Beyond the 'show of wisdom'. In M. Kamil, P.D. Pearson, E.B. Moje, & P. Afflerbach (Eds.) *International Handbook of Reading Research*, International Reading Association, Mahwah, New York: Routledge. (pp. 432-453).
- Markauskaite, L., Freebody, P., & Irwin, J. (2011, Eds.) *Methodological choice and design: Scholarship, Policy and practice in social and educational research*. Dordrecht, Netherlands: Springer Science (pp xii+312).

Dr Kelly Freebody is a lecturer in pre-service education at the Faculty of Education and Social Work, The University of Sydney, Australia. Kelly's teaching and research interests are in the areas of drama, social justice, school-community relationships and qualitative research methods, particularly the detailed study of talk-in-interaction. Her PhD used drama pedagogy to explore the ways young people in differing socio-economic situations understood and discussed their future prospects and pathways. Her recent work has focused on the importance of teachers becoming researchers of the communities in which they work and school-community relationships in socio-economically disadvantaged areas.



Keynote address 5– Young people, their views, their visions: Cross cultural perspectives offer ‘new’ wisdom

Professor Margaret Robertson

La Trobe University, Australia

ABSTRACT

One of the hurdles facing researchers in social contexts is the need to accept the vagaries of what we mean by ‘knowledge’. Our epistemological assumptions are invariably buried deep in our cognitive landscape. They push us into views about how to function in daily life as well as the bigger and more important elements of public policy including education, health and wellbeing. The dominant narrative that underpins schooling in any context is likely to be a response to a variety of deeply held beliefs and values considered to be ‘right’. National identities rely on grand narratives so these assumptions do not seem wrong. However, in the current global complexity of the ‘mobility turn’ or freeing up of imaginative thinking via cyber tools the limitations of this approach seem to be obvious. Perhaps it is that pre-virtual world decision makers don’t get it. But young people do and we have asked them for advice. In national settings that crisscross the continents the voices of young people have been heard on issues that range from local dilemmas to global diplomacy and sustainable futures. Regardless of socio-cultural context there are shared concerns about our planet earth and its future. There are views that reflect the local wisdom of family elders and communities. Importantly our common research approach has legitimized the voices of young people. They offer imaginative and creative responses to major problems which deserve close attention.

BIOGRAPHY

Professor Margaret Robertson is at La Trobe University. Her research interests include cross-cultural understandings, mobile learning and social media. Current projects include a cross-cultural study of adolescents' views and visions of their futures and an interest in the theme of schooling for sustainability. She has authored and edited more than 100 publications including 10 books, 30 book chapters and 30 articles in peer reviewed journals. Currently Margaret leads an ICSU funded project team investigating 'landscapes in transitions' in the Australasian region. She is a member of the Australian Curriculum, Assessment and Reporting Authority's reference committee for the development of the Australian Curriculum for Geography and is currently Deputy Chair of the Australian Academy of Science's National Committee for Geography.



Keynote address 6– Getting research into policy and practice: Reflections on a researcher's journey

Professor Sue Kilpatrick

University of Tasmania, Australia

ABSTRACT

The ultimate purpose of research is not to discover what happens, why it happens or how it happens. Neither is it merely to understand how a particular slice of the world 'works'. The purpose of research is to be able to structure things to achieve a certain goal, or act in ways that align with some objective. For example, to increase productivity by reducing the proportion of people without post school qualifications, or to deliver chronic disease prevention health programs that cause overweight individuals to modify their diet and exercise behaviors. Getting research results adopted by government and translated into policy, or getting professionals or organizations to change the way they practice is challenging. Policy makers and practitioners rarely read our prized academic journal papers. Research translation requires a different set of tactics. This presentation draws out some messages through a reflection on my own research journey which has included some 'wins' and some pieces of research which are languishing on the shelf, that I, at least, think are worthy of implementation. Key messages for getting research adopted are: network with policy makers and practitioners and establish relationships with those who are interested in your research area; seek out applied research opportunities; write for non academic audiences and present at practitioner and policy maker conferences; and be available for media contact.

BIOGRAPHY

Professor Sue Kilpatrick is currently Director of Centre for University Pathways and Partnership at the University of Tasmania. She was Pro Vice-Chancellor (Rural and Regional), Deakin University. Professor Sue Kilpatrick was Director of the Department of Rural Health, University of Tasmania, Chair of the Australian Rural Health Education Network and previously Director of the Centre for Research and Learning in Regional Australia. She has had a career-long interest in rural and regional development through education and research. She has a PhD in the Economics of Education. She is passionate about higher education access for rural and remote students and lifelong learning. Her research interests are education and learning in rural and regional Australia, rural health systems, social capital, rural workforce, community participation, learning for natural resource management and primary industry, and community leadership. She has over 150 publications and has received numerous research grants in these areas besides working as a consultant with local communities.



Researching Across Boundaries in the Social Sciences

Ian Hay

University of Tasmania

ABSTRACT

This chapter explores the concept that social science researchers need to research across traditional boundaries to better respond to the complexity of human behaviour and the pluralism that is a common characteristic of society. The topic is investigated using examples from the author's own research related to the formation of adolescents' self-identity and his research on children's early reading development. Within the chapter it is argued that researchers need to be responsive to opportunities and that boundaries to their research are often more imaginary than real. Research is premised on the need to problem solve and thus it needs to transition and blend together at least three related elements that are often perceived as three different elements: the technical, the creative, and the communicative elements. Cross boundary research identifies that knowledge and wisdom cannot be siloed in one location, procedure or discipline but rather it is acquired over time using a variety of sources, resources, and influences.

Keywords: Quantitative, qualitative, research, diversity, pluralism, social media, interconnected self-concept, early reading, multidimensional, knowledge.

INTRODUCTION

The word research is made up of two parts, the first part is from the Latin prefix *re*, to go back again, to do a repetition. The second part *search* comes from the Latin word "circus" to go around and to explore. Hence, the core meaning of the word research is to look again, to explore again. Thus, the word research means looking at something once more, but this time for a different purpose or from a different perspective. The need for someone to problem solve and re-investigate a topic again suggests that an obstacle, impediment, or boundary is being resolved and so crossed. It could be that someone is looking at the problem from a new perspective, using a different procedure, a different method, or a different theory. As a consequence they are confirming, value adding, or extending what is already known about the topic under investigation.

Crossing boundaries in research is based on the premise that knowledge is cumulative and most theories and practices are partly an extension of other people's theories and practices. The notion here is that researchers always "stand on the shoulders of giants" with the giants being the theorists and researchers who have previously explored the topic. Stephen Hawking (2002) the astrophysicist wrote the book: *On the shoulders of giants. The great works of physics and astronomy* in which he claimed that each of the following researchers and theorists extended the work of the other, starting with the works of Copernicus, to Galileo, to Kepler, to Newton, to Einstein, and finally to

Hawking. This chain of research extends across many boundaries with the obvious boundary being time, with Copernicus (born 19th February 1473) who theorised how the planets in the universe rotated, to Hawking's contemporary understanding about how the universe started and how it is still forming.

It is also important to consider what is meant by the term boundaries, which in the context of this chapter refers to borders, limitations, and obstructions. We are all familiar with physical boundaries, such as those provided by a wall, a mountain range or even an ocean. Research boundaries, however, are often invisible and include elements that are discipline based (i.e., sociology, psychology, medicine) as well as social and cultural factors, economic and resources factors, psychological factors, plus past practices and theories.

The topic, researching crossing boundaries will be explored from an educational psychology perspective and the examples will mainly be drawn from the author's own research.

DIVERSITY

Human behaviour is complex and as such understanding it has to occur from a number of perspectives. From a psychological and social research perspective there are three recurring themes associated with behaviour and development (Hay & Ashman, 2012). The first is that an individual's actions and behaviours need to be understood within a context and that context changes over time. The second is that an individual's behaviour is considered multi-causal, and third is behaviour is considered multidimensional. Thus, human behaviour and learning are considered to be complex and because of this researchers need to be willing to consider the topic under investigation from a number of perspectives. A single viewpoint can become a boundary in terms of how the researcher thinks about a concern and acts.

All individuals live within a pluralistic society and they daily interact with an array of services, resources and people. Pluralism is an agent for encouraging multi-team and multidimensional research. It is not the only agent and part of the argument for researching across boundaries is the concern with the complexity and size of the problem and the diversity of the participants. In terms of size some human service issues are too large and too complex to be managed from just one standpoint. For example, the United National High Commissioner for Refugees has stated that in 2012 there were 15.4 million refugees worldwide and 27.5 million individuals were internally displaced or forced to leave their homes due to armed conflict, violence, or human rights violations. These figures demonstrate that some human troubles are on such a scale that no one country, professional group or approach is able to solve the problem alone. To service such a need requires housing and food support, medical and health support, psychological support, educational support, as well as wellbeing support. Such complex issues suggest that Maslow's pyramid of human needs, proposed in 1943, still has some validity in understanding the human condition, with his claim that basic human needs, such as food, water, shelter and then relationships had to be met before higher order needs involving a sense of wellbeing could be achieved.

The concept of diversity is also important when considering the idea of researching across boundaries. For example, Australia's population is over 22 million (Australian Bureau of Statistics, 2012) and at least 17% of Australians come from a non-English speaking background and speak another language at home, with 23% of all Australians being born overseas. In Australia, over 200 languages are spoken including 45 indigenous languages. This level of diversity has an impact across all sectors of society. It also has a direct and indirect influence on the implementation of research and the interpretation of research results. Diversity should not be seen as a negative factor, rather

cultural and social related differences and similarities provide new opportunities as well as new challenges for researchers. This highlights that researchers need to be sensitive to cultural and linguistic variability when planning their research.

In the social sciences, background research variables, such as gender, socio economic status, ethnic and cultural factors, provide meaningful ways to interpret data sets and understand people's actions and their behaviours. In the social sciences these background variables are considered important to help explain actions and predict possible outcomes. For example, Hay (2000) investigated adolescents who were suspended from school and identified different motivational patterns for girls compared to boys. Girls suspension from school were more associated with girls' low self-concept scores, while boys received more positive status feedback from their peers for leaving school and so had higher self-concepts. Such a finding has been used as a justification for having different intervention approaches for males and female who are demonstrating early "at-risk" behaviour (i.e., Carroll, Houghton, Durkin & Hattie, 2008). Although the Hay (2000) study was based on at-risk adolescent Australians, other researchers from different countries have extended this research, which illustrates that research by its very nature has the potential to traverse boundaries. It also illustrates that researchers need to see their research as having a wider audience than just their immediate peers. The concern is that often by the time some social science researchers have finished their study they have lost interest in the project and so do not publish their findings. This is an important psychological and confidence boundary that needs to be crossed, as no research is finished until it is published.

Social science research results and findings are often discussed as being multi-causal and hence across a number of boundaries. For example, one finding by Hay and colleagues (i.e., Hay, 2000; Hay & Ashman, 2003; 2012; Hay, Ashman, & Ballinger, 2000; Hay, Ashman, van Kraayenoord, & Stewart, 1999) was that during adolescence, networks of relationships outside of the family unit widened and took on greater importance in terms of the development of individuals' self-identity, coping strategies and emotional stability. Such widening acted as an early marker for adolescents' quest for self-autonomy and self-identity, which in turn encouraged their ability to select their own social relationships and advice. The argument put forward was that identity formation is multi-causal, such that both a positive self-identity and positive social relationships during adolescence were important protective and resilience factors that helped moderate against risk factors, such as poverty or disadvantage in the home and community. This is a claim that was also made by Hawkins and Catalano (1992) and Rutter (1979) from their seminal research on protective factors, children's development and disadvantage. Rutter's research is a good example of multi-causal research where he conducted a large scale longitudinal study using a range of techniques. He followed a cohort of individuals from a range of settings and their families over time and in so doing linked health factors, school factors, community factors, and home factors together. As a consequence, Rutter's research has informed theory, across a range of social science and health disciplines and policy and practice of professionals who work in community, educational, and welfare settings.

INTER-CONNECTEDNESS

Associated with boundary crossing and creative problem solving is the notion of using a number of different approaches to verify the original finding. This process is called "triangulation". It comes from a mapping term where the physical features in the landscape are used to line up the map so the map is in relationships to the landscape. Triangulation in research is where two or more approaches or methods are used to validate the hypothesis being investigated.

One example of researchers using different methods to arrive at similar conclusions pertains to linking new developments in neurological science with adolescents' self-identity research. The contemporary thinking is that the human brain has a high degree of plasticity and that learning, creativity, problem solving, and thinking are social in purpose. The old conception of a right and a left brain has been challenged with the human brain now perceived as functioning as a complex but integrated system (Doidge, 2007). Hay's research (Hay & Ashman, 2003; Hay, Ashman & van Kraayenoord, 1997; 1998a; 1998b; Hay, Byrne, & Butler, 2000) on adolescents' self-identity was conducted using large scale survey instruments, however, recent neuroimaging research by Sebastian, Burnett, and Blakemore (2008) has demonstrated that activity in the brain regions associated with self-processing, including the medial prefrontal cortex, changes between early adolescence and adulthood. These studies indicated that neurocognitive development might contribute to behavioural phenomena characteristic of adolescence, such as heightened self-consciousness and susceptibility to peer influence. This recent research integrates well with Hay's findings which were generated using social psychology research procedures. Again, there is some evidence to suggest that girls may start this neurocognitive development earlier and so begin the process of developing their emotional stability away from their parents earlier, as the Hay and Ashman (2003) and Natsuaki et al. (2009) studies have suggested. In the above example, the medical neuroimaging research triangulates with the social science research.

NOTHING AS PRACTICAL AS GOOD THEORY

In educational and social science research there is often a reported boundary associated with theory and practice. The problem with this boundary is that all practices are built on a theory of how society, the individual, or the world operate. For example, a teacher says, I am not interested in the theory taught at University about how children learn to read, I am only interested in practice. Unfortunately, what this teacher is failing to understand is the choice of material, the class organisation, the type of motivation and assessment strategies used are all reflective of that teacher's theory about why and how children learn. These theories become hidden and embedded in teachers' thinking and so practices. For example, the theories associated with teaching reading some 400 years ago in England are different to the theories used in contemporary Australian classrooms. Wilson (2010) has suggested that 400 years ago reading was mainly for boys, who were taught to read using a Latin bible. If the boy made an error he had to re-read the passage and was often physically punished for any mistakes. These practices and the contemporary ones are both reflective of theories on how and why children learn. This is why Lewin's (1952) statement, *there is nothing as practical as good theory* is so relevant in social science research and why exploring and evaluating theories is essential for understanding and researching practice.

From a social science research perspective one of the traditional boundaries has been reviewed from a methodological perspective with qualitative data techniques on one side and quantitative data techniques of the other side. Qualitative data are more focussed on text and words, such as interview data and descriptions of events. In comparison, quantitative data are more focussed on numbers. Although these differences may be seen as belonging to different methods the division between the two approaches is more imaginary than real. For example, written text is made up of words and ideas and these can be counted and so their frequency can be converted to tables and graphs.

Similarly, quantitative data findings are often based on written surveys. In this approach to data collection the level of agreement to a question or statement is converted to a number. This is an example of going from text (words) to numbers. As a consequence across the social sciences a

blended or mixed model approach is frequently used because it incorporates both qualitative and quantitative data techniques (Punch, 2005). To assist this boundary cross there are software programs that do text-analysis, such as Leximancer (<https://www.leximancer.com/>). For example Table one below is a summary of a set of interviews conducted with a group of students on what motivated them in their schooling. The words represent the main concepts and themes that occurred across the interviews and the count the times the concept was raised by the students.

Table 1. *Leximancer analysis - word ranking based on students' interview data*

Concept	Absolute Count	Relative Count	
play	46	52.8%	
activities	36	41.3%	
teacher	29	33.3%	
support	27	31%	
games	23	26.4%	
friends	21	24.1%	
time	20	22.9%	
encourage	18	20.6%	
fun	17	19.5%	
marks	13	14.9%	
actions	7	8%	
teams	6	6.8%	
bored	6	6.8%	

THE READING WARS

Cross boundary research is in opposition to the hypothesis that knowledge and wisdom can be located and siloed in one place. In contrast, cross boundary research identifies that knowledge and wisdom are acquired from a variety of sources and resources that connect different elements together over time. For example, in reading instruction there has been a debate between the whole language strategies approach, where there is focus on written text, and the phonological and the decoding of words approach. This is sometimes referred to as “the reading wars”. Pearson (2004), however, maintained that this division is fundamentally flawed and argued for a balanced instructional (boundary) approach.

Certainly the work of Hay and others would support this balanced approach in terms of reading instruction. The evidence for this support comes from research that has shown that many children with significant reading and learning difficulties have deficits in both phonological awareness and language skills (Hay & Fielding-Barnsley, 2006; 2009; Snowling, 2005). Whilst language delays are considered a cause of reading delays, the children’s lack of reading skills also have an ongoing negative influence on the children’s vocabulary and language development (Catts & Kamhi, 2005; Fielding-Barnsley & Hay, in press; Hay & Fielding-Barnsley, 2006; 2009; 2011; 2012). This reciprocal relationship between language and reading has significant implications for the type and range of

instruction teachers provide to children in the beginning school years. For example, Hay, Elias, Fielding-Barnsley, Homel, and Frieberg (2007) have demonstrated that a combination of a language plus a phonological awareness intervention approach has demonstrated enhanced decoding (reading skills) for children at-risk of reading failure.

More recently, Fielding-Barnsley and Hay (in press) have demonstrated that because children's language development, vocabulary development and the development of children's letter and word decoding skills are so inter-connected that even when there is a stress on one of these dimensions or approaches, there is a transfer of skills to the other dimension. That is, providing reading instruction that stresses word decoding and letter/sound knowledge improves children's comprehension of text. Similarly, providing reading instruction with blocks of written text and having the children articulate and understand the meaning of those words improves children's letter/sound knowledge. This is an example of where the imaginary boundary of text based reading instruction is on one side of the wall, and letter and word based reading instruction is on the other side of the wall, is an incorrect theory. The reality is that reading and reading comprehension whether at the letter and sound level, the word level, the sentence level, the paragraph level, or the whole story level are all interconnected and are on the same developmental continuum.

TECHNOLOGY AND SOCIAL MEDIA

In terms of future research and therefore new boundaries crossing, social media is an important consideration. Increasingly with greater availability of interactive digital technology used in the home and across the community, digital communication is increasing. Certainly, social media tools, such as blogs, emails, the internet, Facebook, and Twitter are becoming more common as a means of communicating across social and physical boundaries (see Lê & Lê, 2012, for review).

This rapid transfer of information that is often freely available is influencing how people are socialising, communicating and connecting to each other. There is an ever increasing supply of web-based material available and one of the challenges is to evaluate its quality and relevance. In terms of crossing new boundaries there are many Australian homes where both the children and the parents are actively engaged in using digital technology for recreational and self-educational purposes, creating a shift away from schools as the main source of educational information and advice. In this respect these digital rich home environments are ahead of many classrooms in terms of e-books, e-learning resources and use of digital technology (Marsh, 2011).

The indications are that as homes become more digital, so too will classroom with tablets and iPods, laptop computers, interactive white boards, and other information technology and digital tools becoming common. The challenge is that not every home or school may have the same access to technology and so a new boundary may develop: those with technology access and those with limited access. Although the author of this chapter is supportive of the use of social media and web based and e-learning resources, parents, teachers and others also need to be selective about what they download and why. The challenge is to evaluate the quality of the download. For example, in response to concerns about the quality and the misinformation associated of some iTunes apps, particularly those associated with phonological programs, Fielding-Barnsley and Hay (2012) developed the iTunes app, *Profs' Phonics* based on their evidence based research. *Profs' Phonics* was designed to provide a high quality child centred e-learning resource to facilitate early readers' vocabulary and phonological development.

CONCLUSION

The focus of this chapter is on the interconnectedness of research and the need to consider the triangulation of methods to deal with complex social and educational issues. A theme within the chapter is the hypothesis that all researchers need to transition often imaginary boundaries. While boundaries have the advantage of defining a cohort of individuals with a shared language, culture and procedures, the disadvantage is this within group behaviour encourages conformity of ideas. Researchers working within multidisciplinary teams need to be respectful of other researchers and their perspectives, to perceive research as multidimensional and that behaviour is multi-causal. Researchers and practitioners who transition across traditional or imaginary boundaries need to be ongoing learners who have the skills to analyse and synthesise data using a range of techniques and procedures and link different elements and information together in often different and creative ways.

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Cross-cultural Research in Mathematics Education: Challenges and Opportunities

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ABSTRACT

Mathematics is often perceived as a culture-free, objective discipline. There is considerable evidence, however, that mathematics is inextricably linked to local culture. The history of mathematics reflects the development of social culture, and branches of mathematics have developed, and continue to develop, to solve problems in a particular context. Mathematics as taught in schools is affected by the language, ethos and needs of the society. Curriculum development is not context free, and the choice of what mathematics to include, or at which point in schooling particular mathematics topics should be addressed is as much a political as an educational decision. Examples of ways in which mathematics education is intertwined with society and the challenges and opportunities that the links with local culture present for mathematics education will be explored. The implications for cross-cultural research will be discussed.

Keywords: Mathematics education, challenges, opportunities.

INTRODUCTION

Mathematics is popularly regarded as objective and value-free. In practice, however, the mathematics that is used is situated within a culture and varies according to the demands and needs of a particular situation (Lave, 1988). Bishop (1988) showed that mathematics is embedded in all cultures but that the nature of the mathematics used varied from society to society. There are numerous examples of the ways in which mathematics has developed differently in diverse cultures and the history of mathematics mirrors the development of humanity.

Western mathematics, which is largely the mathematics of the school classroom, has developed from the Greek tradition. This practice is based on logic and abstraction, qualities prized by ancient Greek society. In contrast, Chinese mathematicians, for example, focussed on relationships, using contradiction to understand how objects and events interact within a context (Nisbett, 2003). An example is how the Greeks and the Chinese viewed numbers. The Greeks were fascinated by the links between numbers and geometry whereas the eastern tradition was to use numbers for recreation and fun. The Lo Shu turtle shown is a magic square—every row, column and diagonal adds to 15. In contrast the Greeks developed the ideas of figurate numbers which relate the counting numbers to geometric shapes, as shown in Figure 1. The Chinese approach is essentially playful

whereas the Greek focus on structure is more serious and formal. These two traditions are markedly different and to some extent these differences are still seen in mathematics classrooms today.

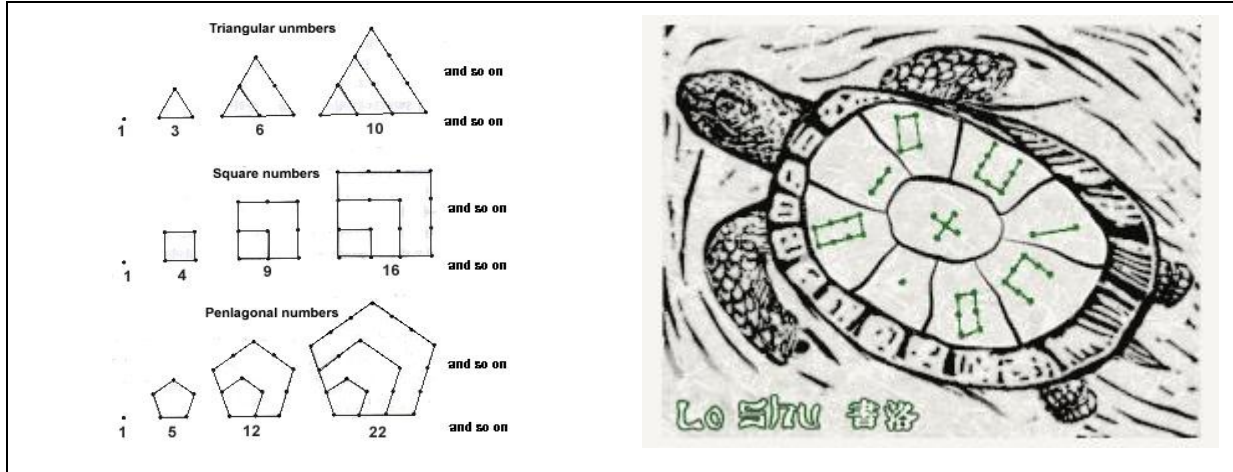


Figure 1. Greek “figurate numbers” and the Lo Shu turtle.

There are a number of challenges in undertaking cross-cultural research in mathematics education, arising from the different cultural traditions in which education occurs. These include the applications of theories developed in one context in a different setting; language issues that affect not only how mathematics is understood but also how questions for cross-cultural studies may be phrased; diverse curriculum structures and expectations; and a range of classroom challenges.

CHALLENGES IN CROSS-CULTURAL MATHEMATICS EDUCATION RESEARCH

In this section, some of the challenges associated with cross-cultural research in mathematics education are considered. Many of these challenges are associated with the assumptions that arise from a particular cultural perspective.

Theoretical considerations

Theories may be incorporated into research from a variety of cultural traditions. As an example, one common perspective used in much educational research is from the Russian school of psychology. Vygotsky's (1978) notion of the importance of social interaction is an underpinning view across many fields of education, and has been widely used in cross-cultural research (e.g., Phillipson, 2010). Clarke, however, (Clarke, n.d.,) points out that works provided from the original language into English may be translated in different ways that may impact on their meaning. He uses the same passage from Vygotsky's writing translated by different people to demonstrate that diverse interpretations may impact significantly on research design. The differences may impact on theoretical frameworks and hence interpretations of the data.

Similar considerations are needed when Western ideas are applied in other cultural settings. The World Bank, for example, funds a range of educational research to support developing countries. The view of education implicitly supported is driven by Western values, including evidence-based change. Clarke (2012) suggests that education systems should develop assessment systems to track improvement in education quality. The underpinning idea is that “learning drives prosperity” (p. 1). Although all of the suggested reforms may appear reasonable on the surface, little regard is given to the cultural appropriateness of the systems suggested.

The penetration of Western ideals of education into developing countries is growing and pervasive. Orr (1999) argued that forms of education familiar to western cultures have replaced indigenous education processes. Education has become “big business” and few are questioning the social and economic costs of introducing westernised education systems into countries that have little infrastructure. In this situation, researchers can become blind to the underlying cultural traditions. In turn, research may be compromised because of this lack of insight.

Language challenges

Language is the way in which humans describe, explain and create their culture. Chomsky argued that all languages have a universal grammar (Chomsky, 1957). In this sense mathematics is a language since its written forms have strict rules to which mathematical symbols conform. Language both emerges from and develops culture (Boroditsky, 2010). If mathematics is considered as a language, there may, therefore, be a “culture” of mathematics. In school mathematics, however, the culture of the society in which schooling is located comes up against the culture of the domain of mathematics (Nasir, Hand & Taylor, 2008).

When learning mathematics, in the early years especially, the thinking is language dependent. The concepts and ideas are spoken rather than written (Williams, 2008). As mathematics develops, however, it becomes more abstract and the written mathematical text that we use today uses symbols to carry enormous quantities of data. Such symbols comprise numbers and letters, often Greek letters that stand for a particular idea or phenomenon, and specialist symbols. This symbolic language is independent of culture and used is used everywhere by mathematicians. The power of this universal language is that a relatively simple mathematical expression can convey the same idea in a range of contexts. Take, for example, the Golden Ratio, expressed mathematically as:

$$\varphi = \frac{1 + \sqrt{5}}{2}$$

This ratio, usually referred to by the Greek letter phi, ϕ , is found in architecture (The Parthenon), art (the Mona Lisa), sunflowers and nautilus shells, to name but a few examples. It is examples like this one that give rise to the idea of mathematics being culture free, identical wherever it is found.

In the social sense, however, the links between natural language and culture impact on the mathematical ideas which are possible. Some Australian indigenous people do not have words for “left” and “right”, for example, (Edmonds-Wathen, 2012) but use words for compass directions instead. Spatial orientation is critical in a traditional Aboriginal society to navigate across vast distances. Some South American tribes only have generic words for “few” and “many” and cannot provide exact quantities. In contrast, Chinese society needed to be able to deal with very large numbers, and the Chinese developed a defined unit for 10,000. Lean (1992) argued that number systems in Papua New Guinea and Oceania were affected by the environment in which they developed, and that traditional societies used numbers in different ways from those of modern mathematicians.

There is considerable evidence that mathematics in the education setting is strongly influenced by culture. Leung (2012), for example, argues that international comparisons of students’ achievement are not valid unless consideration is given to the social contexts and cultural influences that impact on education. These views indicate that undertaking cross-cultural research in mathematics may be more difficult than it appears. In particular the “natural” language in which mathematics problems are written can impact strongly on cross-cultural research.

Cross-culturally valid instruments

One challenge that may be forgotten is the need for instruments that cross cultural boundaries. In any study, instruments are needed for data collection that provides valid and reliable information. Whether the data are qualitative or quantitative, collected via a survey or through observation or interview, the instruments must give the same kind of evidence that is interpretable in the same way.

Aspects of language impact strongly on possible questions that might be used for comparisons. One example is from the field of geometry where, in English, there is a focus on learning the names of different shapes in the early years. Because these names generally have Greek roots, such as Hexagon, Octagon and so on, they are difficult words for children in Australia to remember. Figure 3 shows an item used in the Year 5 National Assessment Program – Literacy and Numeracy (NAPLAN) in Australia. The child has to recognise the differences between a pyramid and a prism, and the number of sides of an octagon and a hexagon to make the correct choice. Such an item would be nonsense in Chinese. The translation of hexagonal prism, 六角形棱柱, has the character for 6, 六, embedded within it. In many Asian languages, identifying a heptagon would translate as finding a seven-sided figure.

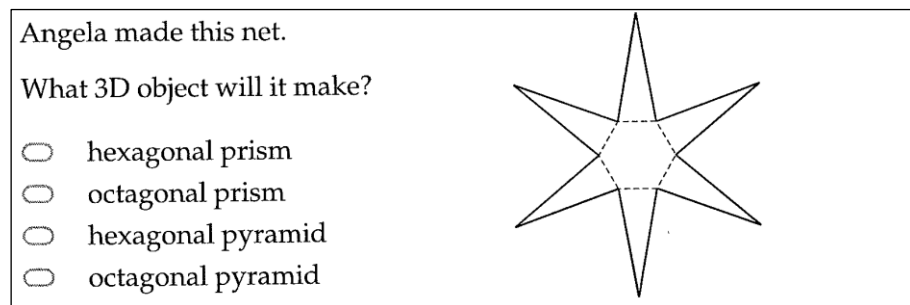


Figure 2. NAPLAN Year 5 item.

The influence of language has been suggested a one reason that Asian students achieve highly in mathematics. The structure of the counting numbers in most Asian languages is logically related to the mathematical structure. The “teen” numbers, for example, which are particularly difficult in English, have the same language and mathematical structure. Thus fourteen (14) in Chinese (十四) is ten-four. There are similar close links between the language and the mathematical structures in classroom mathematics such as fractions and computations. The fraction four-fifths ($\frac{4}{5}$) in Chinese is literally “five take four parts” (五分之四). Dehaene (1997) suggested that number names are easier and more logical in Chinese and shorter to say, reducing memory load for young children. Mathematics, a “culture-free” discipline appears to be better supported by the language of some cultures rather than others.

Curriculum and classroom challenges

A curriculum document articulates what a particular society or culture values in education, and specifically mathematics education. It addresses not only what should be learned but, implicitly or explicitly, how that should be taught. There is evidence, however, that teachers implement curriculum in unintended ways (e.g., Haimes, 1996) and assumptions are often made about different approaches to delivery based on perceptions from a different cultural perspective. Clarke (2010) described linguistic tools used by teachers in a variety of cultures that had become embedded in practice as a named and identifiable component of a mathematics lesson. In France, for example, an

activity called “mise en commun” is one in which the teacher elicits a variety of responses from students in order to provide a range of examples to draw together the key concepts. The English translation of “pooling” or “sharing” does not capture the subtlety of the activity. Similarly, watching mathematics classrooms in Asia, from a Western perspective it is easy to dismiss approaches to teaching as “rote learning”. Again the complexity of the activity may be missed because the memorisation used in Asian classrooms is actually the development of a complex web of relationships among mathematical concepts. Many Asian classrooms appear to be teacher directed but are in reality quite student focussed with all of the intellectual ideas being derived from the students themselves.

OPPORTUNITIES CREATED BY CROSS-CULTURAL RESEARCH

Much has already been learned from cross-cultural research in mathematics education. There is better understanding of local mathematics, such as the counting and directional systems referred to earlier. In turn, this has the potential to lead to improved curriculum delivery, allowing students to build on their natural mathematics.

The success of Asian nations in international studies of mathematics, such as the Program for International Student Assessment (PISA) (www.pisa.oecd.org) has also led to a consideration of the approaches to teaching mathematics. One of these which is now being adopted widely in Western countries is “Lesson Study” (Hollingsworth, 2002). This approach to planning comes from the Japanese, and involves careful and deep consideration of the lesson through discussion with peers, reading appropriate research literature and active anticipation of student misconceptions together with planning to address these. Small groups of teachers meet regularly to plan and discuss the lesson together. Where implemented systematically, this approach has been shown to be successful in Western settings (While & Southwell, 2003).

Asian countries, in contrast, recognise that much mathematical pedagogy and assessment in the west focusses on problem solving and open approaches to mathematical questions. Support from UNICEF, for example, has led to reform of the primary mathematics curriculum in North Korea (UNICEF, 2010) including approaches for modern monitoring approaches and more constructivist classrooms, within the framework of the existing education system. In Hong Kong, school based assessment projects have implemented successfully approaches to classroom assessment using tools such as open-ended questions and “Think Boards” which allow children to express their mathematical understanding in diverse ways (Callingham, 2008).

CONCLUSION

Mathematics should not be dismissed as “culture free” simply because it has a universal form that is recognised by professional mathematicians across the world. As with all educational enterprises, mathematics education exists within a culture. When researching across cultures, even when mathematics is the focus, differences should be carefully considered. Without such care, inferences drawn from the research may be compromised or invalid. In mathematical activity as well as elsewhere researchers should celebrate diversity and the opportunities that it affords.

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The Push–pull Effect Determining IMG Retention in Rural Contexts

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ABSTRACT

International Medical Graduates (IMGs) currently constitute 25% (n=18,896) of all doctors in Australia and remain essential to the health workforce in rural and remote Australia. However, there is very little research regarding the integration, acculturation and retention of IMGs as they reside in the rural context such as Tasmania.

This paper, which forms part of a larger doctoral study looking at IMG's in Tasmania, explores, from the perspective of IMG stakeholders, the push-pull factors, beyond the acculturation process, which specifically impact upon retention of IMGs in rural and remote Tasmania.

The study adopted a qualitative research approach. Twenty-three semi-structured interviews were conducted with IMG stakeholders in the North, South and North West of Tasmania. Stakeholders were recruited through purposive snowball sampling.

The findings indicate Tasmanian based IMGs encounter both professional and social challenges. However, within the study six push-pull factors which contribute to IMG wanting to stay or leave rural Tasmania were identified. Four push factors include workplace ethnocentrism and cultural intolerance; poor employment and career pathway opportunities; unmet needs in the workplace and community; and funding challenges faced within the workplace, the community and among individuals. The remaining two factors which enable integration and retention were identified as pull factors. These include meeting the specific needs of an IMG and their family and are dependent upon the individual characteristics of an IMG and their family.

Keywords: International Medical Graduates, rural, healthcare, stakeholders, health workforce.

INTRODUCTION

International Medical Graduates (IMGs) constitute 25% (n=18,896) of all doctors in Australia and 30% (n=500) of registered medical practitioners in Tasmania. IMGs remain an essential element of the health workforce in rural and remote Australia (Australian Institute of Health and Welfare, 2011; Department of Health and Ageing, 2011; Han, 2010; Iredale, 2009). Under section 19AB of *The Health Insurance Act 1973*, also known as the *10-Year moratorium*, IMGs are required to work in rural and remote areas where shortages of doctors exist. This redistribution of IMGs restricts access to Medicare provider numbers, subsequent cash rebates and therefore the ability to practice independently until a 10 year compulsory rural placement has been fulfilled.

As noted within previous research, IMGs have expressed concerns about immigration, appropriate support and ongoing examination required to work in Australia. However, very little research has

focussed on the psychosocial integration and acculturation of IMGs as they reside in the rural contexts (Alexander & Fraser, 2007; Carlier, Carlier, & Bisset, 2005; Durey, 2005; Han & Humphreys, 2005; Han & Humphreys, 2006; Hawthorne, Birrell, & Young, 2003; Heal & Jacobs, 2005). This is particularly evident in Tasmania, a less culturally diverse area of Australia (Han & Humphreys, 2005; Lê & Kilpatrick, 2008). Much of the earlier research of IMGs in rural Australia has focused primarily on employment integration, satisfaction and practice support as a measure of acculturation and retention (Alexander & Fraser, 2007; Carlier, et al., 2005; Durey, 2005; Han & Humphreys, 2005; Han & Humphreys, 2006; Hawthorne, et al., 2003; Heal & Jacobs, 2005). Nevertheless, only a small number of these study recognized quality of life and social needs of IMGs and their families as crucial factors impacting acculturation (Alexander, 1998; Colic-Peisker, 2009; Stanley & Bennett, 2005).

It is vital for IMGs to be part of and become integrated with rural communities, to feel engaged with and valued by the community. IMGs and their families can undergo a substantial displacement in moving to rural and remote Australia including social isolation and financial adversities. The success or failure of IMGs in rural communities is linked with the quality of planning IMGs receive in addition to support throughout the whole process. It has been duly noted 'rural doctors are also human beings, requiring appropriate facilities to meet their quality of life needs' (Alexander, 1998, p. 136). Lastly, having sufficient support for the family of an IMG is essential to ensure they are strengthened by and integrated into the community (Frehywot, Mullan, Payne, & Ross, 2010; Kilpatrick, Johns, Vitartas, & Homisan, 2011; Rural Health Workforce Australia, 2011; Stanley & Bennett, 2005).

This paper reports on one stage of a larger study, the acceleration and retention of IMGs, and investigates from the perspective of IMG stakeholders what is occurring Tasmania. The findings indicate Tasmanian based IMGs encounter both professional and social challenges. This reflects what has been highlighted within the literature, that a strong association exists between migrant integration and retention (Han & Humphreys, 2005; Han & Humphreys, 2006; Kilpatrick, et al., 2011). Integration or acculturation experience of an individual can be quite different between migrants who stay in their new country permanently or those who stay on a more temporary basis (Berry & Sam, 1997). It is not a one size fits all process and there are many factors and variables which cannot be ignored in relation to the acculturation of individuals or groups. Therefore acculturation is achieved when certain conditions are met. However, as indicated within the finding of the research, there are a number other external push-pull factors, beyond the acculturation process, which are at play and specifically impact upon the retention of IMGs in rural and remote Tasmania.

METHODS

The focus of this qualitative phase of the study was to investigate and explore IMG stakeholder perspective of IMGs and their perception of the main issues faced by IMGs (Bernard, 2000; Broom & Willis, 2007; Calnan, 2007; Davis & Scott, 2007). Gathering data from IMG stakeholders was important due to their wealth of knowledge regarding IMGs, their specific challenges and needs within the Tasmania context (Hawthorne, Hawthorne, & Crotty, 2007). In addition, due to the nature and complexity of the study, a number of theories have been adopted as the framework and a lens to understand the data and guide the study. Many comparable IMG studies have been framed by a number of theories without great consensus over the useful of a specific approach. This study is theoretically located within a tradition of phenomenology and social, cultural and acculturation theory. Acculturation theory acts as the lens to understand IMGs and the level of physiological acculturation which occurs on an individual level (Berry, 1997; Berry & Sam, 1997). Thus,

phenomenology is used to generate methods of understanding, which views world of lived experience as a fundamental source of research (Campbell, 2011; Van Manen, 1990).

Data were collected through semi structured interviews with a purposive snowball sample of twenty-eight (n=28) of the known thirty-eight (n=38) IMG stakeholders in Tasmania. These stakeholders are the key individuals who recruit, support and act as educators and advisors to IMGs in the Tasmanian public and private health workforce, which span across Tasmania. Due the nature of the snowball sampling, new stakeholders were identified as original stakeholders were being interviewed. Many newly identified stakeholders were contacted and subsequently interviewed. A number of stakeholders were identified much later in the data collection process and were often working in the same organisations as those already interviewed.

The stakeholder participants were interviewed once in English between September and December 2011. Ethical approval for the research was endorsed by the Social Sciences Human Research Ethics (Tasmania) Network. The interviews were voice recorded, transcribed, coded and analysed using QRS-NVivo v9.0 software (QRS International Pty Ltd, 2011). For the purpose of the initial study, thematic analysis was used to identify recurring themes, patterns of living, behaviour and experience which then become a description of phenomenon. In addition, principles of grounded theory and inductive analysis provided the identification of new or emerging themes from the stakeholder data (Aronson, 1994; Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2008).

RESULTS

The sample

Twenty-three (n=23) of the twenty eight stakeholders agreed to be interviewed, representing a response rate of 82%. Of those who elected not to be interviewed, three chose not to be interviewed while the remaining three citing work schedules which inhibited their participation. The stakeholders included those with clinical and non-clinical backgrounds who worked full or part time in various capacities such as medical educators, directors of clinical training, program officers, organisational heads and recruitment management and staff. Two of the twenty-three stakeholder's interviewed were also IMGs. It was anticipated the qualitative data would illuminate the issues and problems faced by IMGs and their immediate families in rural Tasmania.

Findings

In addition to the identification of IMGs encountering both professional and social challenges, an overarching core category has been identified which impacts retention of IMGs. For IMGs, integration and retention is a complex phenomenon, which remains challenging to be predicted by any degree of certainty, as there a large number of push-pull factors occurring within place. In contrast to the universal push-pull factors, introduced by Klein et al. (2009), faced by IMGs as they migrate to a new country, there also remains local push-pull factors of staying or leaving a certain place after migration has occurred. For example, there is a *push* which IMGs experience when compelled to meet training requirements or due to workplace or community barriers compelling the need to leave. In addition, IMGs also experience pull factors which may be caused by the attraction of family who live elsewhere or a family who are settled and do not wish to move, thus enticing the IMG to also stay. These push-pull factors are also mediated by the resilience, perseverance and adaptation abilities of both the IMG and the family.

Under the auspice of the local push-pull factors there are six factors or areas were identified which impact integration and retention of IMGs, as shown in Figure 1. Many of these factors have been identified by current and previous research (Alexander & Fraser, 2007; Carlier, et al., 2005; Durey, 2005; Han & Humphreys, 2005; Han & Humphreys, 2006; Hawthorne, et al., 2003; Heal & Jacobs, 2005). Nevertheless, there are a number of additional identified factors which also influence IMGs retention. Two push factors are specifically workplace barriers which include ethnocentrism and cultural intolerance; and poor employment and career pathway opportunities. The remaining two push factors are overlapping workplace and community barriers. These include unmet needs in the workplace and community; and the funding challenges faced by workplace, the community and individuals. The remaining two areas which enable integration and retention were identified as pull factors. This includes meeting the specific needs of the IMG and their family and individual characteristics of an IMG and their family. Each of these factors are discussed in greater detail.

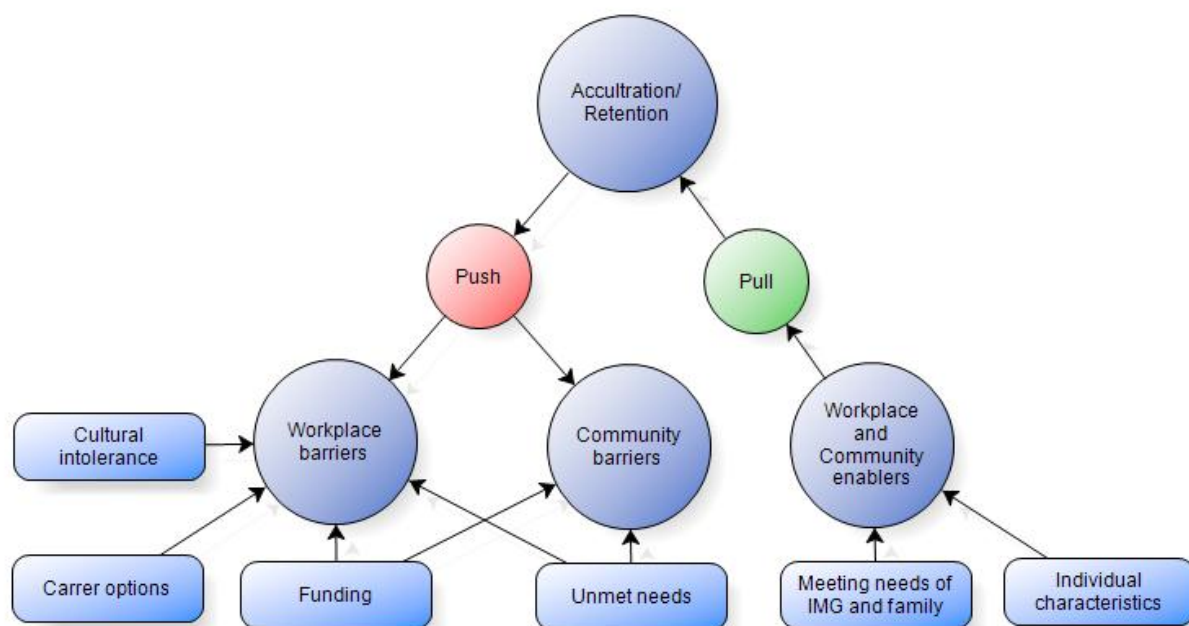


Figure 1. Push-pull factors influencing IMGs

PUSH FACTORS

Poor employment and career pathway opportunities

Career pathway opportunities were identified as one of the two most significant contributory factors in retention of IMGs in Tasmania. As highlighted by Berry & Sam (1997), permanent immigrants have a propensity to experience a vastly different acculturation experience when compared to temporary immigrants. However, IMGs due to the nature of their training may experience a greater cognizance of temporariness, even when compared to their Australian Medical Graduate counterparts. Many stakeholders stated junior IMGs only live in Tasmania for 12-24 months, with a number of registrars only in place for 3-6 months for training purposes. In addition, many IMGs were reported to undertake further training once they had completed their requisite Australian Medical Council registration to practice in Australia.

Thus this transiency or obligatory movement of IMGs due to requisite vocational training contributes to the inability to stay within place, be retained and even acculturate. Also the requirement of permanent residency status for a number of Tasmanian training positions, such as general practice, also limits the impetus for IMGs to stay. As outlined by one stakeholder, who said:

They don't really want to move on, they would really actually like to stay and finish their training here and stay settled here. A lot of them are very happy doing General Practice, but it is the permanent residency that they really need. (Stakeholder 22)

In addition, those who are in more permanent placements required by the 10-year moratorium, also experience a level of transiency. By the nature of their required placement, an understanding exists regarding the lack of permanency of place; therefore this may also inhibit retention, knowing there is no permanency of position. Limited career options and the financial uncertainty for future work within the state, due to a contracting health service caused by the current financial climate occurring in Tasmania (Giddings, 2011), were also highlighted as a large contributor of IMGs not staying in Tasmania. It was also feared this great uncertainty and lack of choice would further deter others from coming to Tasmania. "It will hurt our reputation interstate and if the IMGs talk to their friends overseas there is a possibility of missing out of good candidates" (Stakeholder 12). Nevertheless, there are many other barriers which also may inhibit the retention of IMGs.

Unmet needs in the workplace and community

Meeting the needs of IMG within the workplace and IMGs and their families in the community was identified by IMG stakeholders as the second most significant factor pertaining to the push to leave the state. In contrast to poor employment and career pathway opportunities which at times are an involuntary decision, unmet needs of IMGs and their families remains a voluntary decision. It is a decision which remains in the hands of the IMG and family yet, is dependent upon external stimuli. For example, acute care stakeholders cited informal or a lack of pastoral support or a view that pastoral support was not part of the organisations modus operandi. Whereas general practice stakeholders observed pastoral care was at the heart of retaining IMGs and their families in the state.

In addition, other unmet needs were highlighted in the workplace. These included the inability to get appropriate recreational or training time away from the workplace. Particularly those in general practice, there was reported an element of professional isolation and much less collegiality. The unmet needs relating to living within a community related much to the physical isolation from a major centre. It also related to the physical and psychological isolation from family and cultural group. Where being isolated from family was caused by IMGs meeting the requirements of vocational training. Isolation from family and culture was observed by stakeholders to be even more compelling for IMGs to move away from the state. For example, an stakeholder stated "it is a bit more challenging in Tasmania, because we don't have the cultural critical mass" (Stakeholder 11). While another stakeholder said "some of them come for a while and don't have the cultural support they need and so go back to the larger centres like Melbourne and Sydney" (Stakeholder 1).

Ethnocentrism and cultural intolerance

Acceptance and support of IMGs was reported as overall positive, yet pockets of racial and cultural intolerance were stated to occur on rare occasions. Particularly amongst work colleagues and other health care professionals in the acute care setting. The intolerance of colleagues and healthcare staff was at times masked by ethnocentric comments toward IMG stakeholders. These comments were often the venting of frustrations of staff members who worked with IMG and who requested

the stakeholder to fix or resolve a concern or problem. Those who raised concerns, once informed or provided with a means to uncover their own ethnocentricity were on the most part more understanding of IMGs and working with IMGs.

Racial and cultural intolerance had been reported to occur from those in great power which permeated down to staff and organisations. It was among specific individuals of a number of organisations who IMGs were required to affiliate with on a regular basis, which caused the highest anxiety. Another source of anxiety was the racial and cultural intolerance amongst patients. This again was reported more by acute care stakeholders in the North West of the state. It was stated these experiences were what inhibited a number of IMGs to feel part of the community and increased their desire to leave.

Funding challenges of workplace, the community and individual

Both acute care and general practice stakeholders stated greater funding was required to meet the professional needs of IMGs and to ensure the state remain competitive in terms of training opportunities. It was recognised there was a greater amount a funding available than there once was, however these funds were still felt to be in short supply. So much so, one stakeholder had relinquished their own paid hours to ensure appropriate funding was available for the required training opportunities for IMGs.

It was also recognised that many IMGs were also undergoing great financial pressures, which related not only to employment, but also the cost of maintaining a family in terms of meeting childcare, children's education needs and health insurance costs, all of which are non-subsidised for temporary resident IMGs. For example, with the inability to access Medicare, "many IMGs need to have private health insurance, however some just go without any health cover at all... because it is a cost and then if [they have] a family it costs more" (Stakeholder 21). It is these added costs which stakeholders stated also inhibit retention within Tasmania as many IMG opt for careers elsewhere where opportunity for higher incomes is more available rather careers such as rural general practice. In addition, it was reported a number of IMGs:

who were specialist in their country of origin are now working as [Resident Medical Officers] and these days there is very little overtime and on call, so their salaries are not what they have been used to. They have moved here, and have a house, mortgage, car, school, whatever. (Stakeholder 22)

PULL FACTORS

Meeting the specific needs of an IMG and their family

Meeting the specific needs of IMGs and their families were highlighted by both acute and general practice stakeholders as a key pull factor to better IMG acculturation and retention. This was achieved through what many termed "education" or needing a greater "awareness" of IMGs both formally and informally. Much of the focus has been on educating IMGs as much as possible, but also educating the staff regarding differing models of care and the cultural differences of IMGs and their own preconceptions about different cultures. When speaking of nursing staff and allied health, one stakeholder said "everybody needs better education about how important IMGs are to our system" (Stakeholder 5).

In addition, many stakeholders, with good intentions, attempted to assist IMGs with a number of social issues however, were at times ill-informed how to meet these needs. For example a

stakeholder said “we had one doctor that was from Nigeria and basically what I did was get them in contact with the migrant resource centre” (Stakeholder 6). However, another stakeholder had discovered the migrant resource centre was not really helpful to IMGs, as the resource centres were funded to assist refugees not economic migrants.

Overall there was a good sense of rapport with IMGs among other IMGs and also Australian Medical Graduates within the acute setting, both socially and professionally. This was reported to be among the various members of the specialities, where it was said to be a close knit. “Those friends they make in the hospital really become their friends that they socialise with so it becomes one and the same thing really” (Stakeholder 15). However it is also among the larger cultural and linguistic diverse groups within the acute care setting, such as Indians, where it was reported the initial integration occurs smoothly. As such, a stakeholder relayed

[IMGs] are suddenly part of a very vibrant and active, large group of people, where there are quite a lot of IMGs, or there are lots of people who have begun their life in Australia... so they find one another quickly and they are quite a nice solidarity for them. (Stakeholder 15)

Another stakeholder stated although these intracultural social networks within the hospital were good, they stated “sometimes it is good to branch out as well, I think it can be quite unhealthy when it is just the hospital community” (Stakeholder 21).

Meeting the needs of IMGs and families was also stated to be about understanding and having an awareness of individual IMGs and their family needs within the community. For example general practice stakeholders stated a lot of effort goes into the matching of an IMG and their family to a community. It was stated to be just as important as matching the IMG to their workplace.

We want to know what their interests are and also what their employment needs will be because there is not point putting all this effort in and a doctor putting all this effort getting here, when they arrive here their partner can’t find a job or there is no suitable schools or whatever, so do we try to put a fair bit of focus on family. (Stakeholder 3)

This matching, although governed by the 10-year moratorium, was observed as a way of ensuring families and IMGs were able to make social connections within a community. However, another stakeholder stated, it was also “to do with how the community engages and embraces [the IMG]... It has to do with the whole family; I don’t think it is about the IMG, I think more importantly it is about the family” (Stakeholder 14). How to become involved was felt to be the challenge faced by both IMGs their families and also the community’s characteristics. It was noted communities were now becoming more familiar with IMGs as their GP and greater acceptance of their contribution within the community was occurring. “They are starting to move toward accepting these people and finding them intriguing and interesting. [The community] are quite welcoming and they see that they are trying to help” (Stakeholder 21).

Many stakeholders commented on the positive benefits of belonging to a club, church or a group of individuals and how this “common interest” had a propensity to aide greater community connectivity. For example a stakeholder said:

Interestingly those who settled in well were those IMGs who joined sporting clubs... We had a couple who were really good cricketers in Deloraine and they fitted in really well and their family then fitted in really well too, [when] they were brought into the sporting club community...so if you can actually get into some club, they have common interest that tends to help everyone. (Stakeholder 20)

As such, social capital is developed by participating within an organisation (Leonard & Onyx, 2003). However, Onyx and Bullen (2000) demonstrated that membership within community organisations

was the catalyst for and paved the way for the development of extensive social and support networks (Leonard & Onyx, 2003; Onyx & Bullen, 2000). As such these social networks are not always a calculated investment but are often the “by-products of other activities” (Esser, 2008, p. 36). Therefore social capital is developed as a by-product of participating within an organisation or due to a shared common interest.

Lastly, the pull factors of staying in place, also relate to IMGs being settled in place. Although a stakeholder, who was an IMG, provided their own example, it was stated this was occurring amongst a number of IMGs which stakeholder knew personally. It was said:

I wanted to leave for Melbourne within the first 3-4 year... but now I am quite happy to go to Margate or Snug, somewhere along there, get a big house and a big yard. I can't believe it! Why, because I feel like I belong, this is my home now, I won't even leave for [my chosen career pathway] because this is my home, this is my community, these are the people I want to serve. What a change! (Stakeholder 21)

In addition, the prospect of being separated from family due to training and greater employment opportunities also inhibits a number of IMGs leaving the state. A stakeholder reported

A very senior consultant... has just been at a Melbourne hospital for 6 months and doing more training and his family are here. He was offered a three year contract because he did a good job at one of the big prestigious Melbourne hospitals and he is not taking it because their kids are settled here and they don't want to move schools. (Stakeholder 4)

Nevertheless, at times the push to leave often outweighs the pull to stay in the state. For example, there are those who have limited choices in Tasmania for career progression and need to leave. As such one stakeholder poignantly said:

Many [IMGs] have had a fantastic time and almost cried when they have gone, they have a great time, especially if it is place where their partner has joined them and [they] decide that they will have their first baby and so their first appointment, the hospital they have been appointed becomes very sentimentally attached to and they can be quite upset that they are leaving. They are often not leaving because they haven't felt part of the community, they are leaving because they want to progress in their career. (Stakeholder 15)

IMGs and their family's individual characteristics

As noted in the stakeholder data, the push-pull factors are mediated by the resilience, perseverance and adaptation abilities of both the IMG and the family. Almost all stakeholders discussed the individuality and heterogeneity of both individual IMGs and their families. It had been indicated although two IMGs may have come from the same country and similar cultural background, they were both individuals and their unique needs were to be assessed and met. “We have got to think of them as individual with their own unique culture” (Stakeholder 1). As such, there is an element of flexibility which stakeholders needed when working with and addressing the needs of IMGs and their families.

Many stakeholders discussed the complexity and diversity which are observed from many IMGs and their families who live and work in Tasmania. It was stated, IMGs can be shy, outgoing, resilient, despondent, resistant to change, adaptable with a high level of perseverance. “You hear all sorts of different stories... people are very shy or home sick, the wife says no I can take this anymore and they have to leave, through to the very happy and well integrated” (Stakeholder 14). As such it has been reported, those IMGs and especially their families which are outgoing, resilient and adaptable have a greater tendency to be integrated and have higher retention. Nevertheless, each of the push-pull factors also partially contributes to each individual outcome.

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

Within the finding of the stakeholder data analysis from the initial stages of the larger research project, it was found there are a number of push-pull factors adjacent to acculturation, which impact upon the retention of IMGs in Tasmania. It was observed there were six factors which contribute to IMG wanting to stay or leave rural contexts such as in Tasmania. Two push factors are specifically workplace barriers which include ethnocentrism and cultural intolerance; and poor employment and career pathway opportunities. The remaining two push factors overlapped between workplace and community barriers. These include unmet needs in the workplace and community; and the funding challenges faced by workplace, the community and individuals. The remaining two factors which enable integration and retention were identified as pull factors. This includes meeting the specific needs of the IMG and their family and individual characteristics of an IMG and their family. It was noted the push-pull factors are mediated by IMG and their family's resilience, perseverance and ability to adapt.

Adjacent to the acculturation process of professional migrants such as IMGs within rural Tasmania, there are additional push-pull factors which inhibit or generate retention within place. It must be recognised these push-pull factors are individual and dependent upon each IMG and their family's needs and desires. As these push-pull factors are acknowledged, this provides additional understanding for policy makers and stakeholders regarding the motivations of IMGs to reside or leave rural areas and how to best to meet the needs of IMGs. In addition, this may aide to deliver greater impetus to rework the focus of how and in what capacity IMGs can be recruited and retained in rural areas, such as Tasmania. Although insightful from the perspective of IMG stakeholders, further research is required to triangulate and clarified the current data gathered. This is to be achieved by the next stage of a larger study being conducted by the authors, where IMGs and their experiences regarding IMG acculturation, retention and living in in rural areas will be explored. As IMGs may be experiencing these highlighted challenges or other challenges which are unknown to the key IMG stakeholders.

CONCLUSION

This study has examined the views, knowledge and understandings of IMG stakeholders in Tasmania who assist and support IMGs, a heterogeneous group of doctors, which encompasses a large number of nationalities, cultures and religious backgrounds. These key stakeholders' interviews have demonstrated integration and retention remains a complex phenomenon and a great challenge for IMGs. The stakeholder data highlighted there are a large number of additional local push-pull factors influencing IMGs whether to stay or leaving a certain place. Underlining the push-pull factors are six factors which stakeholders had identified to determined integration and retention. For example the factors included ethnocentrism and cultural intolerance; and poor employment and career pathway opportunities; unmet needs in the workplace and community; and the funding challenges faced by workplace, the community and individuals. In addition, the pull factors included meeting the specific needs of the IMG and their family; connections made with communities through common interests; and the resilience, perseverance and adaptation abilities of an IMG and their family. Nevertheless, as these findings are comparatively analysed alongside the IMG data, it is anticipated greater clarity and insight will be observed.

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Video Review for Psychomotor Skill Development: Does It Suit All Students?

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ABSTRACT

Aim: This preliminary study investigated the use of self and peer review for psychomotor skill development using a video analysis software, CRITIQUE. It also considered the effectiveness of the software for domestic and international students studying in Australia.

Background: The use of video technology in preparing health professionals for clinical skill performance is not new. However, the application of a learning tool that supports collaborative review and reflective annotation of video recorded skills by self, peer and instructor is a newer application of the technology that shows potential.

Method: A quasi experimental study involved a convenience sample of undergraduate nursing students, comprising Australian domestic (n = 64) and international (n = 19) students studying in Australia. Students were exposed to CRITIQUE and its impact evaluated using a purpose-designed questionnaire.

Results: Whilst all students viewed CRITIQUE favourably, international students were less receptive to it than domestic students. Ratings satisfaction with the experience, and the affordances of the tools to support learning processes and reflective practice were all lower. The time required to use CRITIQUE for learning purposes was considered less manageable by international students than domestic students; this may arise from a perceived lower level of IT literacy reported by International students.

Conclusion: CRITIQUE shows promise as a learning strategy to support psychomotor skill performance in domestic and to lesser extent international students. However, the numbers in this preliminary study were small and further investigation is warranted to validate these findings and to establish other student characteristics that may influence the learning and assessment potential of CRITIQUE.)

Keywords: Reflective practice, video analysis techniques, health professional education, clinical skill development.

INTRODUCTION

One aspect of health professional education involves the preparation of students for competency in clinical-based skills for later transfer and application into work place settings. A common approach to the development of these skills typically occurs in simulated clinical settings, providing a safe environment for student development. The learning is traditionally teacher directed, with

subsequent opportunities for student practice. Learner centred approaches, involving reflective practice, show promise in effectively equipping students with the necessary skills in this area.

Digital technologies, purpose-built to support skill development in a range of disciplines, are emerging. The affordances of these tools challenge traditional approaches to teaching and assessing clinical skills. A video reflective learning analysis software package, with capacity for reflective annotation by self, peer and instructors, has emerged that has a sound pedagogical basis. The technology enables student centred learning within authentic reflective tasks. This technology has been used for some years in the education and professional development of teachers, allowing for self confrontation and reflection of practice (Kong, et al., 2009; Preston, 2008; Rich & Hannafin, 2009; Wing-mui, Hung & Yip, 2008) and more recently has been extended to health professional curriculum (Das & Allix, 2010; Gordon & Buckley, 2009; Hands, et al, 2009). This paper discusses the findings of a preliminary study evaluating this technology to support clinical skill competency development in health professional students.

BACKGROUND

Reflective practice

Reflection is a fundamental activity of experiential learning, whereby sense and meaning is made from an active learning experience. Informed by experiential epistemology, Schön's (1983) classic work on 'reflect on action' and Kolb's (1984) 'learning cycle' led to the upsurge of interest from disciplines who recognized the importance of reflection for professional practice and to support the development of process underlying learning. Atherton (2011) suggests that reflective activity has become a mainstay educative strategy for professional training, in particular because it bridges the theory-practice gap (Schön, 1983; 1987). Its application in health professionals practice is well regarded; Taylor (2002) reports on technical reflection to assist and improve performance in nursing procedures, whilst McClure (2005) attests to the value of including reflection on action in student nurses learning experiences for clinical skill development. This is supported by Ladyshevsky and Gardner (2008) who argue that robustness in clinical knowledge is gained through reflection. For this to happen McClure suggests reflective practice should first be initiated in safe environments, where it is acceptable for the student to make mistakes and learn from them.

The practice of reflection involves the individual reviewing and making judgments about an event or experience. Boud, Keogh and Walker (1985) defined reflection as "those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations" (p. 19). Taylor (2006) extends this definition by describing the cognitive acts inherent to reflection and suggests these include "...thinking, contemplation, mediation and any other form of attentive consideration, in order to make sense of them, and to make contextually appropriate change" (p. 8). Johns (2000) adds that critical reflection is "a window through which the practitioner can view and focus self within the context of his/her own lived experience in ways that enable him/her to confront, understand and work towards resolving the contradictions within his/her practice between what is desirable and actual practice" (p. 34). From this it can be seen that reflection is a transformational learning process, eventuating in an outcome as action is made explicit (Carr & Kemmis, 1986; McClure, 2005).

Reflection can be encouraged by feedback techniques, whereby the mentor instructor provides advice on the learner's strengths and areas for further attention (Palmer, Burns & Bulman, 1994). This should be coupled with the individual's self-reflection, which can be assisted through the use of reflective frameworks. A reflective framework provides the scaffolding for reflection and as Kong,

Shroff and Hung (2009) note it makes explicit prompts to guide reflective strategy. Gibb's Reflective Cycle has been widely accepted by the health professions, it involves a description of the event/experience, emotive response, evaluation of what was good or bad about the event, analysis and the sense made of the event, conclusion to determine what could have been done to enhance the event and action plan to identify a course of action when the event is repeated (Gibbs, 1988).

Atherton (2011) contends the involvement of others in reflection is necessary to ensure reflection is effective. Reflection is thus a social activity, likely to involve a professional mentor in the education setting, whose role as facilitator guides the learner in the acquisition of new skills. Guskey (1990) suggests that regular assessment of performance combined with constructive feedback from the assessor offers the student opportunities to take corrective measures to improve practice. It is the regularity of opportunities for assessment and feedback that is considered most effective for students to correct and develop their skill base (Ladouceur et al., 2004). Similarly, Tanner (2006) suggests that feedback given after a simulated or actual clinical experience may encourage a student to reflect on their practice.

The place for peer review in fostering reflectivity is becoming increasingly accepted and integrated into the learning experience. Peer review is one strategy that can be incorporated effectively within a reflective practice framework. Vicarious experience, obtained through observing the practice of others and providing peer feedback, can be a useful strategy in assisting students to develop competence in clinical skills (Zulkosky 2009). Ladyshevsky and Gardner (2008) surmise that peers provide an important source of development for practical skills, even under circumstances where supervisor access and involvement is available. In particular, Kearney and Schuck (2006) found the shared experience of peer review motivated student's learning. It seems that seeing other learners perform a skill energises the learner by promoting the belief that if other students can successfully perform a skill they too can attain it (McConville & Lane, 2006). It is this confidence in one's own abilities that marks the novice to expert transition. High levels of self-efficacy have been associated with more advanced professional standards and practice as practitioners become more confident and competent in tackling challenges (Manojlovich, 2005; Zulkosky, 2009). Efficacious practice is made possible through the provision of learning experiences that allow learners to engage with a task and receive opportunities for practice and feedback (Manajilovich, 2005; McConville & Lane, 2006; Zulkosky, 2009).

Cultivating strategies to assist students to reflect on action after they have carried out an activity warrants consideration. Creating a learning task which integrates reflective practice within a safe professional practice learning environment is vital for developing the necessary skill competency base of health professionals.

eTechnologies as solutions

In recent years providing learning experiences within the higher education environment to support practical skill development has become more challenging. The sector is marked by escalating student numbers and increasing academic pressures, diverting academic attention away from core teaching and learning practices (Heinrich, Milne & Moore, 2009; McCann, 2010; Johnson, Adams, & Cummins, 2012). The 2012 'New Media Consortium (NMC) Horizon Report – Higher Education Edition' draws attention to these constraints, as well as budgetary cost-cutting, which threaten the sustainability of traditional modes of education (Johnson, Adams, & Cummins, 2012). Added to this, health professional undergraduate courses are bound by the regulations of professional accreditation bodies. These bodies enforce their own standards and competencies, which institutes must address in the curriculum to create suitable learning experiences. Rethinking the approaches

used in a student centred model to assist students to learn a professional practical skill base is necessary. Part of the solution may be provided for by digital video technologies.

Video is not new in education, but it has tended to be equated with passive learning styles. The affordances of newer video technologies actively support the constructivist paradigm of learning, presenting student centred learning using authentic, situated tasks. Its virtues are now extolled by many and a recent advancement in video-based learning experiences has seen the inclusion of video annotation software, which actively engages the learner in the process of reflective learning practices. The addition of learning tools like this has opened up the potential of video analysis as a potent learning tool capable of maximising the engagement of students (Preston, 2008).

Digital video solutions have been used extensively in teacher education. It seems that recorded video footage of teaching practice performance operates as a stimulus for reflective practice (Preston, 2008; Rich & Hannafin, 2009); especially when reviewing periods involve collaborative discussion with others (Rich & Hannafin, 2009). Similarly, video recordings of teaching practice were made available to teaching students who were grouped and situated in a learning community (Wing-mui, et al., 2008). Peer review in these communities assisted students to understand and learn teaching techniques through critically reviewing the performance of others. Further, Kong et al. (2009) emphasised the scope and quality of reflective experiences is enhanced when students are able to systematically review post-performance recordings in teacher education at a geographical location and time most salient to the learner.

Given, the benefits of contemporary video-based learning have been made explicit; other professional groups have adopted video techniques to enrich students' learning experience. In nurse education, Gordon and Buckley (2009) demonstrated the effectiveness of videoed simulation sessions for improving skill level in clinical care. Study participants positively rated the experience of being able to review their performance via video and found the reflection encouraged debriefing. Hands et al. (2009) developed a video reflective learning analysis software, CRITIQUE, for application in preparing health and sports science students for fieldwork practice. The software supported students to explore the feedback process with their peers. The same software was used by Das and Allix (2010) in a study involving nursing students. The researchers reported the video analysis learning experience was less anxiety provoking than classroom demonstration of clinical skill performances and students rated their confidence to perform the skill higher using the technology. Benefits like this most likely arise because video recorded performances can be less daunting than practicing in front of a large peer group and students are able to repeatedly view the performance in order to assess and evaluate a task (McConville & Lane, 2006).

A pilot study was conceived to investigate the potential of video reflective learning analysis software for the development of clinical skills in diverse groups of nursing students. The focus of the study was to gain a greater understanding of the potential of interactive digital video technology to support reflective practice. In particular to gain insight into the following questions:

- What impact does video reflective learning analysis have on students' reflective development?
- Is video reflective learning technology an effective learning strategy?
- Is video reflective learning technology accepted by diverse student cohorts, particularly domestic and international students?

Video reflective learning analysis software

The software program CRITIQUE was used in this study to provide the platform for electronic annotation of artefacts, in this case video footage of student performances. The program, originally developed for application in university teaching targeting coaching skill development in sports science students, has recently been extended for application in nursing education.

Digitally recorded video is first uploaded and stored on the Web or other suitable digital audio and video storage and retrieval system. From there it can be uploaded into CRITIQUE and made available for students to review and critically reflect on their performance. The software comprises a video viewing window and a communication window for students to annotate their reflections. Users watch the video of their performance to identify strengths and areas for improvement. Using editorial function keys, users can tag the start and end point of specific sections of the video of interest. Once tagged the user is able to operationalise the reflective component of the task by inserting reflective text comments, these comments remain linked to the identified section.

The end result after user coding is a video with numerous markers placed within it, and text based code to explain their placement. Individual tagged sections corresponding to reflective comments can easily be replayed by clicking on the marked segment. A CRITIQUE screenshot is illustrated in Figure 1.

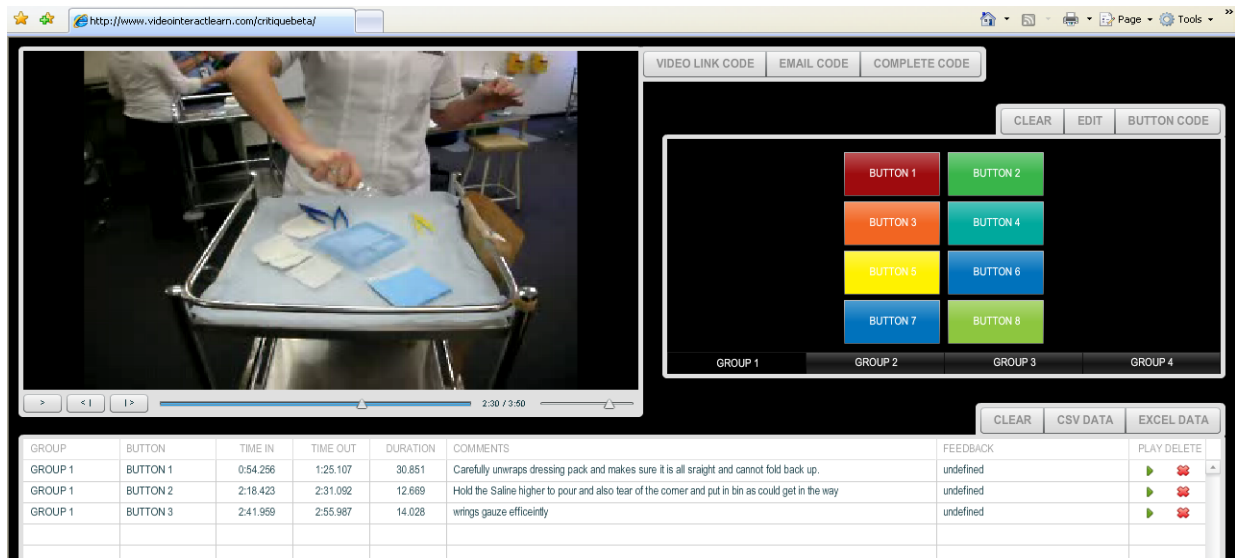


Figure 1: CRITIQUE Platform. The video window is shown on the left of screen, the coloured editorial buttons on the right of screen and the reflective comment window at the bottom of the screen.

METHODOLOGY

A quasi-experimental, two group pre-post test study design was employed to evaluate the video reflective learning technology. Following ethical approval, a convenience sample of pre-registration nursing students ($N = 90$) enrolled in a unit of study providing student learning experiences to prepare them for their first acute care clinical placement was sought. Students were randomly assigned to equivalent ($n = 45$) intervention (I) and control (C) groups. The intervention group received the contemporary educational approach, whilst the control group received the traditional instructional approach.

The skill set of aseptic technique applied to wound dressing procedures was selected from the unit syllabus for the investigation. The traditional instructional approach involved a two hour instructor driven demonstration with supported student practice post demonstration, followed four weeks later by a further opportunity for supervised practice. The first encounter required compulsory attendance, whilst the second was optional as determined by the student's perceived needs. In contrast the contemporary intervention approach encompassed the traditional approach, followed four weeks later by the addition of a small group reflective learning environment instead of the supervised practice offered to the control group. In this environment groups of three students were required to make a digital recording of one member of the group performing the skill. Recordings were made using the students own recording devices, including mobile phones and digital cameras. The recording was then made available for the group to review and constructively analyse the performance using *CRITIQUE*. Making the video available involved the storage of videos in the university's electronic repository, *iLecture system*, from which an automated Web link was emailed to the instructor. This web address was then made available for the student groups to insert into the *CRITIQUE* software. Students were provided with screen-shot illustrated instructions on how to use *CRITIQUE*. They were encouraged to reflect on the performance using the Gibb's Reflective Cycle that they were familiar with and use a feedback rubric identifying key elements of the skill. Initially reflection was conducted individually and then collectively with other group members to initiate discussion whilst sharing reflections. The reflections were then shared with the instructor for review.

Purpose designed questionnaires were prepared for the collection of data immediately prior to the introduction and post completion of the education treatments. The pre questionnaire comprised two parts; Part A collected demographical data, including students' age, gender and residency status (domestic or international), whilst Part B assessed self-efficacy (measured by two items - perceived confidence and perceived ability to perform the skill) using a 6-point Likert scale from '0' strongly disagree to '5' strongly agree. The post questionnaire included the items in the pre questionnaire with the addition of two other parts. Part C used the same Likert scale to assess the learning affordances of *CRITIQUE*, in particular to assess the impact of the technology on learning processes (6 items) and reflective practice (3 items) and a cluster of items addressing satisfaction with the learning experience (4 items). Part D included one item assessing the time taken to use *CRITIQUE*, another its ease of use, whilst the remainder collected qualitative comments on perceived drivers and constraints with the learning experience. The development of the latter two parts of the post questionnaire was informed from surveys used in other studies assessing the impact of technological aids in teaching and learning practices (Lee, Kinsella, Oliver, von Konsky & Parsons, 2010; Stanley & Glaister, 2012).

RESULTS

The retention rate for the post questionnaire was low; accordingly inferential statistical testing was limited. This was particularly the case when comparing the impact of the intervention across student characteristics, such as international and domestic enrolments. Although *p*-values are reported, in most instances sample size limits their statistical validity and therefore they must be interpreted cautiously.

Ninety students were invited to participate in the study; of these 64.4% (*n* = 58; C = 17, I = 41) completed the pre questionnaire and 27.8% (*n* = 25; C = 14, I = 11) the post questionnaire. The demographical characteristics across the groups were tested for equivalency; there were no statistical differences between age (*p* = .382), gender (*p* = .590) and residency status (*p* = .876). Table 1 presents the demographics of the participants.

	PRE-GROUPS		POST-GROUPS	
	Control	Intervention	Control	Intervention
	<i>M (SD)</i>		<i>M (SD)</i>	
Age	24 (6)	23 (5)	24 (6)	20 (3)
Gender	<i>(%) n</i>		<i>(%) n</i>	
<i>Males</i>	17.6 (3)	9.8 (4)	7.1 (1)	9.1 (1)
<i>Females</i>	82.4 (14)	90.2 (37)	92.9 (13)	90.9 (10)
Student type	<i>(%) n</i>		<i>(%) n</i>	
<i>Domestic</i>	64.7 (11)	82.9 (34)	71.4 (10)	81.8 (9)
<i>International</i>	35.3 (6)	17.1 (7)	28.6 (4)	18.2 (2)

Impact of video reflective learning analysis on students' reflective development

The internal consistency for the 3-item reflective scale was strong ($\alpha = .93$). Analysis indicated students valued *CRITIQUE* as a tool for supporting reflectivity ($M = 3.88$, $SD = 0.97$). In particular, 91% ($n = 10$) believed that the technology facilitated their reflections and assisted them to more readily identify their strengths and opportunities for improving clinical skill performance. All students agreed that the technology allowed them to evaluate their ability to perform the skill. Students commented that they were: “able to look back and re-assess self” and found it “easy to reflect on attributes in video”, perhaps because the reflection felt private and there was “no stress to perform correctly”. The average reflective score was marginally lower for international students ($M = 3.50$, $SD = 0.71$) compared to domestic students ($M = 3.96$, $SD = 1.03$).

Impact of video reflective learning technology as an effective learning strategy

The way in which the technology impacted on individual learning was assessed by two measures of self-efficacy. International students ($M = 3.79$, $SD = 1.08$) rated their self-confidence slightly lower than domestic students ($M = 3.92$, $SD = 0.98$), but perceived their skill level ($M = 3.39$, $SD = 0.92$) was slightly stronger than domestic students ($M = 3.25$, $SD = 1.13$). These self-efficacy items were assessed both pre and post instructional strategy, the relative change on these items is shown in Figure 2. Using the percentage ratings it became evident that the intervention group trended towards improvements in the two items, whilst the control group trended downwards, suggesting *CRITIQUE* has the potential to assist self-efficacious practice (Frehner, Tulloch & Glaister, 2012).

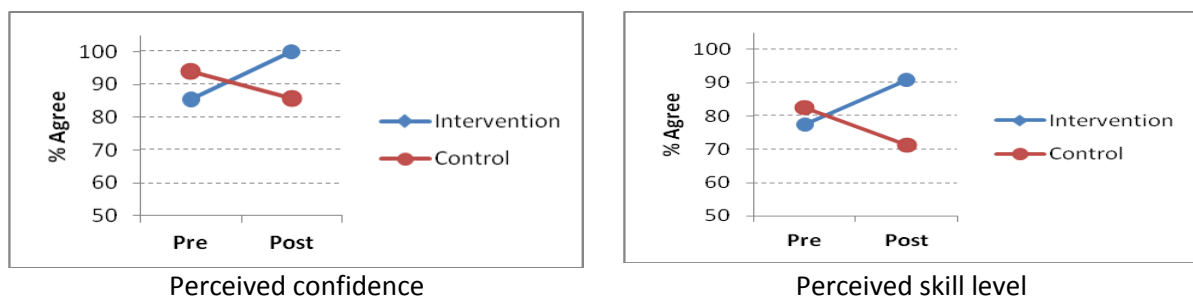


Figure 2: Self-efficacy ratings

The mean score on the six-item learning affordances scale ($\alpha = .86$) showed students positively rated each item, see Figure 3. Most promising was the perception that use of *CRITIQUE* improved clinical

techniques ($M = 4$, $SD = 0.89$). Although motivation ratings ($M = 3.36$, $SD = 1.03$) were the lowest of the six items, most students rated the technology positively. The repetitive nature of the viewing seems to have influenced automaticity of practice. Several students highlighted “I like the fact I can watch the skills over and over if I need to” and “seeing the procedure numerous times” was beneficial. Further one student reported that learning was enhanced because of “the fact that you can see more objectively the pro's and con's of your technique - at another time, as opposed to the one time when you practice”.

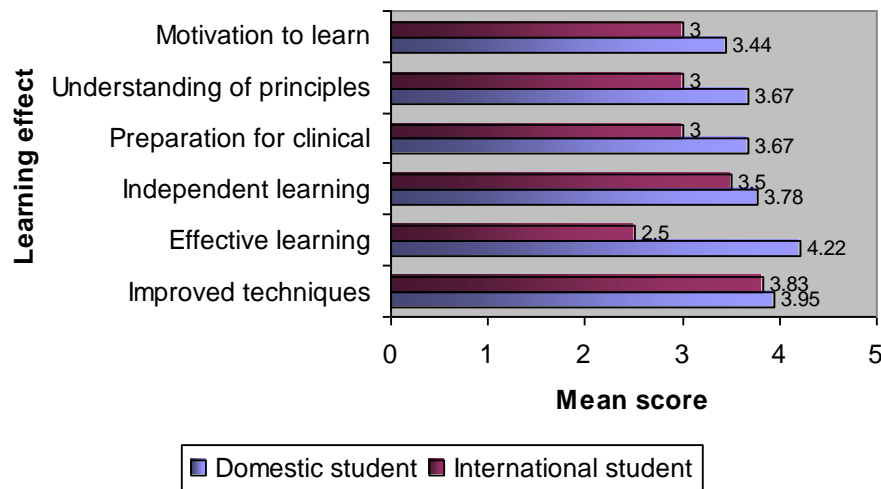


Figure 3: Learning affordances

International students rated the learning affordances made possible with *CRITIQUE* a little less favourably than domestic students; although its learning potential was still viewed positively. The greatest difference was noted for the item assessing students' perception of how *CRITIQUE* assisted them to be a more effective learner; international students ($M = 2.50$, $SD = 0.71$) rated it much lower than domestic students ($M = 4.22$, $SD = 0.67$), ($p = .010$).

The overall measure of satisfaction with the learning experience had strong internal reliability ($\alpha = .80$). Figure 4 shows the mean scores for satisfaction items and generally shows strong support for *CRITIQUE*. Again, international students ($M = 3.20$, $SD = 0.57$) rated their overall satisfaction a little lower than domestic students ($M = 3.98$, $SD = 0.69$) and despite viewing it as a positive experience ($M = 4.00$, $SD = 0.00$), felt less inclined to use the experience again ($M = 2.50$, $SD = 0.71$) in contrast to domestic students ($M = 4.44$, $SD = 0.73$), ($p = .007$). An explanation for this may be due to the level of technology skills possessed by the two student groups; international students ($M = 3.00$, $SD = 1.41$) felt they were less able to utilise the technology than domestic students ($M = 3.78$, $SD = 1.02$) and consequently did not find the software as easy to use ($M = 2.50$, $SD = 0.71$) as domestic students ($M = 3.11$, $SD = 1.20$). Given this, it was not surprising to find that international students ($M = 2.50$, $SD = 0.71$) felt the time spent using *CRITIQUE* was far less manageable than domestic students ($M = 4.11$, $SD = 0.78$), ($p = .026$).

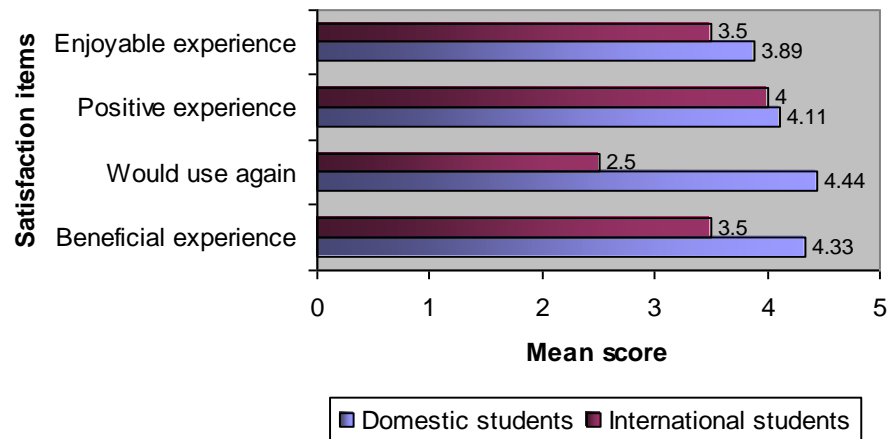


Figure 4: Satisfaction ratings

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

The 2012 'New Media Consortium (NMC) Horizon Report – Higher Education Edition' identifies that educational technologies may offer promise to the education sector, but only if they engage students in the learning process (Johnson, et al., 2012). Laurillard (2008) argues that progress in the appropriate use of technologies in education have been limited by approaches that support technology-driven education rather than education-driven applications of technology that see the potential of new technologies to transform the learning experience. The findings from this preliminary study shows promise for video reflective learning technology to engage learners and supports what others have shown in the health field (Clark-Burg, Das & Allie, 2008, 2010; Gordon & Buckley, 2009; Hands et al., 2009; McConville & Lane, 2006). The study findings support the use of digital technologies in shifting education practices from traditional transmission models of practice to a more pedagogically sound student centred learning hub. This is exactly what Lai (2011) concludes when recommending the use of technology "...as a participatory communicative tool to support collaboration and co-construction of knowledge' (p. 1272).

Video reflective learning technology has demonstrated the capacity to support reflection, with peer review influencing this practice. Through reflection it seems that clinical-based technical skills can be facilitated. This bodes well as an instructional strategy in preparing practitioners for clinical practice. The demands and pressures in the health workforce require students to be fieldwork-ready, especially when clinical-based experiences are generally of shorter duration than that experienced by preceding generations of students.

Unlike some studies, students did not report feeling pressure over performing a clinical skill and being reviewed by peers. Others have found this can act as a vulnerability affecting users' comfort levels with the tools (Colasante, 2011). In the present study strategies were taken to minimise this effect, including the use of small peer groups and instructors who reinforced errors in techniques were expected and the learning strategy was designed to assist students to identify opportunities for improvement. Furthermore, the recorded performances were not graded; it was the reflection and the identifying of strengths, opportunities and remedial action that was appraised. However, that being said, the study group was small and in large groups the confrontational aspect of the strategy may emerge. Thomas (2003) reports on audio recordings of performance in teacher education and recognises the value of a non-judgemental peer group to avoid anxiety and self-

criticism. In the present study the group was expected to discuss all reflective contributions made by the peer group to form a composite reflection for submission to the instructor and thus personalised judgments were likely to be avoided.

Notwithstanding compelling incentives, some students may find the technology threatening, especially if they rate their IT skills less than adequate. In the aforementioned NMC Horizon Report digital media literacy is considered a critical requirement for all disciplines and professions and suitable development is required to enable appropriate use of educational technologies (Johnson, et al., 2012). In the present study there was considerable support for video reflective learning technology, however international students were less receptive to the technology than domestic student, in particular because they perceived they had lower literacy and accordingly were less inclined to use the software. Information technology literacy needs to be accounted for and additional support made available for students that may have lower levels of literacy. However, the number of international students that completed the post questionnaire was extremely low and caution is needed in the interpretation of these findings. Accordingly issues, like literacy levels, affecting the uptake of the technology, and its appropriate use and acceptance across student groups needs further exploration.

The greatest technological difficulty encountered by students and instructor concerned the uploading and downloading of the video recordings into the university audiovisual repository and subsequently into the software platform. *CRITIQUE* was developed to support the importation of recorded video footage which has been stored on the Web. However, this was considered unsuitable as privacy and security could not be guaranteed, likewise *YouTube* was deemed unsuitable due to the public availability of the recorded video. These concerns were overcome at the University by use of the internal *iLecture system*, which is a password-controlled environment. However, the uploading procedure placed inordinate demands on the instructor's time and consequently students experienced a degree of frustration in delays with accessing the video. Students found that whilst devices such as Smart phones used a compatible format (video file), other digital cameras did not always produce compatible files and assistance was needed to convert these recordings to a suitable format. Subsequently, the *CRITIQUE* editing system was difficult to use if the quality of the original recording impeded the visibility of the skill performance. Video management issues in *CRITIQUE* have also been noted by others (Clark-Burg, Das & Allix, 2008; Hands et al., 2009). These issues need to be overcome and the storage and download of videos streamlined if the merits of this technology are to be capitalised on.

A significant limitation of the study was its sample size, which particularly impacted on the post data collection phase and the validity of inferential analysis. The return rate for the pre-questionnaire was relatively strong and was supported by survey dissemination during regular teaching time. The same was not possible with the post-questionnaire, which suffered from low return rates from both the control and intervention groups. Consequently any power in statistical testing is extremely low and with some misgiving, results of statistical testing were included only to support trend data. It is vital that mechanisms need to be put in place to overcome low post-response rates. It may be useful to provide frequent personalised reminders and access to an online questionnaire, although Santos and LeBaron (2005) indicate that online surveys can often result in a lower respondent rate. Otherwise, a greater response rate may be encouraged from the dissemination of a hard copy questionnaire and request for completion at the commencement of a regular teaching session, demonstrated in a study recently undertaken in the same learning environment by Stanley and Glaister (2012).

CONCLUSION

It has been remarked that annotation video technology is regarded as frontier (Colasante, 2011); despite this the technology shows promise for being accepted as an efficacious tool in the tertiary education of professional disciplines. The reported study established the favourable impact of the technology on educational outcomes for health professionals and presents a strong case for its inclusion in contemporary education practices. In particular, the technology effectively provided a forum for active learning strategies (reflection and critical analysis through self and peer review) in a student centred learning framework.

Whilst the number of students who completed the post questionnaire was low, data trend patterns suggest the use of the annotation video technology to learn clinical skills favourably impacts on desired learning process and outcomes for both domestic and international students. Studies including a greater number of participants with characteristics of interest are needed to test the statistical validity of trend data. The universal acceptance of video reflective learning technology across all students may be regarded as questionable. Student characteristics, for example enrolment status, gender and age, may well interfere with the application of the technology and this warrants further investigation. The effectiveness of video technology as an educational learning medium for attaining competency in clinical skills needs to be validated for all users.

The technology and methods used in this preliminary study are useful for informing duplicate studies involving a larger sample size. It is therefore strongly recommended that studies of this nature are repeated.

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Speak the Language, Understand the Culture

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ABSTRACT

China's growing importance in the increasingly global community gives many foreigners an impetus to learn Chinese language. In Australia, Chinese is recognised as one of the fastest growing languages and has one of the largest groups of non-English background speakers. A considerable number of universities, colleges and schools with different backgrounds and settings are strengthening or establishing their own Chinese language programs. How do we create a better language environment to facilitate students' development of all four macro skills in their Chinese study? What are the principles and practical teaching methods to cater for the differing needs of students?

This article begins with a description of the current trends, issues and challenges of Chinese language education in the multicultural society of Australia; the second part of the article is a brief overview of language policies in Australia and the development of Chinese language learning; the third part of the article deals with the findings of a case study; the article concludes with some concrete suggestions for the design and implementation of teaching methods that facilitate effective Chinese teaching and learning.

Keywords: Multicultural, language environment, teaching and learning.

INTRODUCTION

China's importance to Australia has grown with China's increasing economic, political and strategic weight in the Asia-Pacific region and the global economy (Australia Bureau of Statistics, 2009). Australia has strong ties with China in many fields: the volume of their joint foreign trade is growing, academic exchanges are expanding and tourism has a new impetus. Additionally, in 2008, there were 343,000 short term visitor arrivals by people from China, making it the fifth largest market for overseas visitors (Australia Bureau of Statistics, 2009). With the increasing purchasing power in regional Asian economies especially, China has seen a dramatic increase in the number of international students from Chinese-speaking countries and regions studying at universities in Australia (Liu & Lo Bianco, 2007). At June 2008, there were 66,000 Chinese students temporarily in Australia (Department of Immigration and Citizenship, 2009). Australian firms in education, telecommunications, financial services, architecture and design, tourism and environmental services are expanding their operations in China (China in the World Trade Organization, 2002). Given these changes, generating a greater demand for people who are well aware of China/Chinese language is part of the new economic, political and social reality.

Any country or person who is prepared to operate globally in concordance with current and expected global trends can benefit from such an initiative, socially, economically and personally. Proficiency in a second language and intercultural awareness are seen as important personal and professional assets as we take an increasingly global perspective (Hoven and Crawford, 2009). According to a new review of research released by the Australian Council for Educational Research (ACER, 2009), the case for increased second language learning in Australia is better grounded in the personal benefits to individual learners than in arguments about economic and social benefits. Messimeri (2009) argued that those learning new languages gain a greater appreciation and insight into the culture of the language they are learning. The recent Federal Government Bradley Review of Higher Education said:

Knowledge of other cultures and their languages is an essential life skill for future graduates if they are to engage effectively in global professional practice (Bradley Review, 2008 p 104).

More than 1.3 billion people worldwide speak Chinese, and about 885 million of those people speak Mandarin, China's official language and dominant dialect (Aratani, 2006). In America, according to a report of the Modern Language Association, the number of American students in colleges and universities enrolled in foreign-language courses has jumped 13 percent since 2002, while in Australia, between 2002 and 2006, the number of students studying Chinese grew by more than 50 percent (Howard, 2008). In 2006, 60% of the Chinese-born population spoke Mandarin at home while 29% spoke Cantonese and 4% spoke English (Australia Bureau of Statistics, 2009). So the Chinese language is a significant community language spoken by a growing number of Australians (Messimeri, 2009). As Orton (2008) argued: "to develop the present relationship with this country, China, to great mutual economic and social benefit would require a solid pool of Australians in a range of sectors who deeply understand China and who can speak Chinese well." Thus, the task of increasing the number of Australian students who can speak Chinese proficiently and can demonstrate an understanding of Chinese culture is crucial. Messimeri (2009) also pointed out that the need for greater cross-cultural understanding between the Australian and Chinese nations is obvious as is the need for greater cross-cultural understanding between Chinese-Australians and longer established communities in Australia.

BACKGROUND

Australia has been at the forefront among English-speaking nations in the area of language policy and language-in-education policy (Richard, Baldauf and Djite, 2000). The National Policy on Languages (NPL) (LoBianco, 1987) was Australia's first policy on Languages, and was indeed the first of such policies in the world in an English speaking country. It provided a broad educational, social and cultural rationale for the study of Languages. It was instrumental in providing national direction, particularly in promoting the study of a second language for all students, and in advocating access to and maintenance of the first language for students of non-English speaking backgrounds. It provided substantial funding to support the teaching of key Asian languages including Chinese, apart from other traditionally taught European languages. Then there were a few other policies worth mentioning, such as a new policy issued in the early 1990s entitled Australia's Language: the Australian Language and Literacy Policy (ALLP) (Department of Employment, Education and Training, 1991a, 1991b). In 1994, another program called the National Languages and Australia's Economic Future (NALSAS) was introduced into the education system at the primary, secondary and tertiary levels (Rudd, 1994). Both ALLP and NALSAS put more stress on Asian literacy. Asia literacy in the 21st Century is increasingly critical to Australia. This has been highlighted in the 2020 Summit held in 2008, and is strongly supported by the federal government. In 2009, the \$6.24 million Becoming Asia

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Literate: Grants to Schools is a key element of the Rudd Government's National Asian Languages and Studies in Schools Program (NALSSP) (ACSSO Languages Education in Australia, 2009). With a focus on Mandarin, Japanese, Korean and Indonesian languages and cultures, this is a real boost to Asia literacy (ACSSO Languages Education in Australia, 2009).

Correspondingly, Chinese language learning is promoted through the National Office for Teaching Chinese as a Foreign Language (NOCFL), also known as the Office of Chinese Language Council International and in Chinese as Hanban, to list a few: Confucius Institutes, volunteer teachers and the Chinese Bridge Chinese Proficiency Competition for Foreign College Students. The Ministry of Education's website clearly states that:

Teaching Chinese as a foreign language (TCFL) is an integral part of China's reform and opening up drive. To promote TCFL is of strategic significance to popularise the Chinese language and culture throughout the world, to enhance the friendship and mutual understanding as well as the economic and cultural cooperation and exchanges between China and other countries around the world, and to elevate China's influence in the international community (Ministry of Education website, 2009).

As mentioned earlier, with the continuing growth of China's economy, more and more people from all over the world are learning Chinese in order to conduct business and access China's huge markets. The Chinese language is getting increasingly popular worldwide, with as many as 40 million people now learning it as a second language (People's Daily Online, 2009). In the States, Chinese is identified as a language critical to the US now and in the future (Wang, 2006). For several decades, Chinese studies in Australia have enjoyed an enviable reputation internationally for its teaching and research on China, and the teaching of Mandarin Chinese in Australian universities made considerable progress in the 1990s (Asian Studies Association of Australia, 2002). The demand from students wishing to learn Chinese is growing strongly across the nation from preschool to university levels (ACSSO Languages Education in Australia, 2008).

There is growing recognition that China is now highly significant to Australia's future and that this poses challenges for Education in the area of language learning and studies of China (Orton, 2008). Obviously, there may still be obstacles to Chinese language learning. Liu & Lo Bianco (2007) outlined a number of issues exacerbated by the increasing popularity of Chinese language learning in the Australian context, such as grouping learners, continuity of programs across different levels of schooling and catering for background learners. Chinese has been said to be the most difficult language to learn in the world; whether to listen, to speak, to read, or to write, there is so much difference between English and Chinese. Just as Orton (2008) summarised, Chinese has four challenges for the English-speaking learner in terms of intrinsic language difficulties: tones, homophones, characters and the system of particles and verb complements.

A CASE STUDY

A case study was conducted to examine first-year Chinese language learning experience in a university context, which serves to offer insight into the student experience of studying Chinese within a university language program setting, the potential of online pedagogies for the teaching of writing characters and the way in which creative, authentic teaching builds a context for learning. All participants were in their first semester of study and were undertaking an Arts undergraduate program.

The aim of this study was to explore some practical aspects of language education, to consider these aspects in terms of language studies and to enable students to develop their individual abilities to

improve their language learning. This ability helps students to learn another language effectively. A questionnaire was the tool used in this study. It was designed to collect two broad types of information: background information from each respondent about their personal and demographic characteristics; information relating to respondents' experiences of Chinese language learning. A total of 32 students participated in this study. A seventeen-item questionnaire was developed to collect descriptive data about the participants. Results of the questionnaire revealed that the majority of all respondents were aged between 19-45 years (72%), and female students (68%) were 30% more than male (31%). All of them were in the first year of their undergraduate study; the educational specialization of these students was mainly Arts (75%), and the second major area of study was Diploma of Languages (Chinese).

In summary, the illuminative evaluation reported in this case study provided data about the students' experiences of learning Chinese in a university setting. The key issues raised are summarised here. In general, students felt satisfied with their first year of Chinese learning. More than half the respondents said that they enjoy their study. It is interesting to see that a larger percentage of students showed their interest in China/Chinese people and their way of life, and that approximately half of the students said they would like to meet and talk with more people by utilizing their Chinese language skill. Agreement on the value of the study was very high on some questions. For example, more than 50 percent of respondents indicated that they were interested in the Internet and the various online tools and software available. More than 80 percent of respondents indicated putting a large amount of time into practising Chinese. However, approximately 30 percent of respondents said that they only sometimes studied for various reasons. Moreover, more than half of the respondents indicated the great importance of having a language partner, while 25 percent of them considered this less important. Regarding the scale of four macro-skills, more than half the respondents put their reading and writing skills first, then listening and speaking; compared to 25 percent who felt confident about their listening and speaking skills rather than their reading and writing.

Concerning the challenges and concerns students have experienced or consider regarding Chinese language learning, respondents had divergent views on this matter. Students made common remarks about their Chinese learning experience such as: *"The challenge is to learn and understand a totally different language and culture. The logic of Chinese is different from that of English. The construction of a paragraph in Chinese is according to a more regulated style."*

Considering what they enjoy most about first-year Chinese learning, the responses indicated that a clear majority of students saw it as a vibrant program with practical value, which is both educational and enjoyable. As a result, the majority of them were in favor of working in a group or with the help of each other, primarily because they enjoyed the process of working with partners and sharing their learning experiences with their peers. The majority of these students revealed that they would have liked more contact with other students. Here are some of the remarks: *"I enjoy learning languages other than English. I love the challenge of the feeling of being able to speak to foreigners. Chinese is a good challenge. Learning about Chinese culture, I like the structure, easy to know what is expected. Experience of learning a language helps me gain my confidence."*

Since the data pool was fairly limited, the results of this study pertain only to a first-year Chinese program at a university. Some further studies need to be done in this field to explore a very effective way to attract and take learners to new language learning environments.

FUTURE RESEARCH RECOMMENDATIONS

The insights drawn from the studies have allowed us to propose a course redevelopment which will be conceived and designed so that other strategies can both add flexibility and learning enhancement to the face-to-face teaching and also in the near future to develop the program for online delivery.

As a result, there are a couple of suggestions on addressing the issues: technology-enhanced language teaching and learning; emphasis on cultural integration into a beginning Chinese language program; the effect of having a language partner; the significance of an in-country program.

Without a doubt, technology has revolutionised society in many places around the globe, including how language instruction is taught and delivered. Future developments in networked communication, multimedia, social media, and artificial intelligence will likely converge, creating a potentially more central role for the computer as a tool for authentic language exploration and use in the second language classroom. As the focus of attention gradually shifts from the computer itself to the natural integration of computers into the language learning process, as language teachers, we will know that we can make technology and the Internet a more rewarding partner in the language teaching and learning process.

In most cases in language learning, there was little explicit connection between the classroom and the world outside it. One attempt to address this problem came in the Chinese history, society and culture component at beginning level Chinese class. It is noteworthy that the students had positive attitudes towards each single element introduced in the course. In students' teaching and learning evaluation, they indicated that the cultural components provided them with better insights into the context of the target language. They also gained social and psychological advantages with increased cultural awareness. In future teaching, multiple cultural elements can be utilised to address students' different interests and learning styles as well as to maximise the benefits derived from the relevant cultural materials available at the university. Future studies could also explore the impact of different cultural elements on the cultural proficiency of Chinese language learners through a variety of assessment procedures.

A language partner can assist students with vocabulary and dialogue drills, correct pronunciation and grammar mistakes help students develop sensitivity to language learning, and integrate students into daily life conversations. Ideally, language partners should be paired with Chinese students with similar academic backgrounds and interests.

A successful in-country program provides an effective means of helping students gain deeper insights into the local society; improves their language skills intensively through exposure to colloquial language in a real Chinese lifestyle environment; help them understand the value of intercultural communication; and helps them to learn to think critically about their own culture and behaviours in the contexts of different cultural backgrounds. Additionally, students will also have opportunities to improve character development by learning to become more tolerant, adaptable, and confident.

CONCLUSION

As language teachers, we are fundamentally concerned with how language works in communication: with the relationships between utterance and context, language and culture, language and personality, and with language as action (Gumperz, 1982; Cortazzi & Jin, 1997; Nelson, Freedman, & Anderson, 2001; Alred, Byram, & Fleming, 2002 cited in Millar, 2005). The tonal language with its

characters bearing no resemblance to European scripts makes it one of the most complicated languages in the world to learn. In this context, more efficient and effective ways of learning the language are of vital importance. The goal for teaching Chinese is to train students' ability to apply speaking, listening, reading and writing skills in this language. Moreover, language teaching is not just teaching language itself, it is embedded with cultural meaning. The development of multiple language skills is needed to teach students Chinese as well as its associated culture. In the field of second language acquisition, the main focus is to cultivate students' communicative competence in real-life situations. It is hoped that these rich insights will motivate and inform teachers of Chinese to take on the task of designing and developing meaningful programs for students.

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Conducting Research in Social Media Discourse: Ethical Challenges

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ABSTRACT

In recent years, social media have become more pervasive and even the name itself has become ubiquitous. This growth has largely taken place on the assumption that a significant turning point for the evolving social media was triggered by the advance of the second generation of the Web, commonly known as Web 2.0. To understand the unprecedented growing manifestations and the eager adoption of social media, a number of researchers across disciplines and nations, who have turned their attention to Web 2.0 social media research, have discussed two main strands of possibilities and challenges in conducting research in these social media settings. Despite numerous opportunities for them to access rich user-created contents and diverse online cultures, researchers are confronted with a considerable number of ethical issues and challenges. Internet research ethics is not a new topic, but ambiguity, uncertainty and disagreement about ethical issues exist.

This paper argues that these ethical issues and challenges are not easily solved within traditional ethical frameworks and approaches. Rather, in the ethical conduct of Web 2.0 social media research, researchers require an effective integration of three important ingredients: theoretical frameworks, researchers' epistemological standpoints, and a research toolkit consisting of refined codes of ethics, online research strategies and approaches, and risk scale tools. In order to offer an efficient guide for researchers, teachers and students, when using social media applications as a research field or tool, this paper provides a triangular ethical framework developed with the three identified important aspects and also a risk scale tool as to researchers' acts, research contexts, participants' acts, and data content. This paper will be of interest to online researchers and people at the managerial level alike, particularly those who consider ethics and copyright policies in online settings.

Keywords: Ethical framework, social media, ethical issues, human subjects research.

THE PRESENCE AND IMPORTANCE OF ETHICS IN RESEARCH

Ethics is moral philosophy, normatively defined in terms of the pursuit of 'good human life'. Thus, it considers human attitudes, behaviours and beliefs that have a bearing on fundamental questions - how one ought to behave and how society ought to be structured (Velasquez, Andre, Thomas Shanks, & Meyer, 2010). These questions are responded to with reference to key aspects of human life, including rights, duty, fairness, justice, integrity, obligations and virtue (Resnik, 2011).

Responses to these questions can greatly vary from one culture to another as ethical norms, which are closely interrelated to religion, education and society, appear to be broader and less formal than legal regulations (Wiles et al., 2008). Although philosophers and ethicists define ethics in many different ways, there are some definitions that seem to appeal more to researchers. For instance, Shamoo and Resnik (2009) extensively developed four useful senses of the term: 1) ethics as standards of conduct that distinguishes between right and wrong or good and bad; 2) ethics as an academic discipline that studies standards of conduct; 3) ethics as an approach to decision making; and 4) ethics as a state of character (p. 14). Particularly, Resnik (2011) defines ethics as a method, a procedure as well as a perspective in terms of responsible actions in research.

In many countries, especially Western countries, researchers are encouraged to act on ethical standards and procedures developed and recommended by institutional review boards (IRBs) or institutional ethics committees (IECs). Ethical considerations formalised in codes of ethics can be themed with four core principles of research ethics shared among different disciplines and nations: autonomy; beneficence; non-maleficence; and justice (Flick et al., 2007; Green & Thorogood, 2004, p. 53; Krishnan & Tharayil, 2005; Wiles et al., 2008). Autonomy refers to the aspect of respecting the rights and needs of individuals', such as dignity and privacy. It often links to the aspect of informed consent. For example, in obtaining consent from participants, researchers should provide sufficient information about their rights and research to their participants (Flick et al., 2007). The concept of autonomy also relates to confidentiality. In any circumstances, researchers should maintain confidentiality of information gleaned from participants (Green & Thorogood, 2004). Beneficence is basically 'doing for good', which means that research itself should be a positive contribution towards the well-being of the participants as well as benefit society (Resnik, 2011). In doing so, researchers should attempt to minimise harm and risks and maximise benefits. Non-maleficence essentially means 'do not harm'. Harm does not only mean physical pain, but also includes psychological, emotional, economical and social discomfort. Particularly, researchers need to take precautions with research participants, especially, minority groups of people (Shamoo & Resnik, 2009). Justice calls for a democratic attitude from researchers. It requires researchers to distribute the benefits and burdens of research fairly. For example, researchers should avoid discrimination based on gender, race, age, ethnicity, social class or educational level which are not associated with participants' competence and integrity (Green & Thorogood, 2004).

While exclusively situated in all aspects of and throughout the whole process of research, ethics takes an important role in research for many reasons. First, it advances the aims and goals of research. Second, it fulfils social responsibilities. Third, it fosters effective research processes. Last, it avoids or minimises harm and risks from unethical or unacceptable behaviours (Hesse-Biber & Leavy, 2011; Resnik, 2011; Shamoo & Resnik, 2009). Therefore, ethics can be a useful research toolkit that leverages the moral dimensions of research.

ETHICAL ISSUES AND PROBLEMS IN WEB 2.0 BASED SOCIAL MEDIAL RESEARCH

In Web2.0 social media environments, a large portion of people actively and continually establish virtual social networks, build online communities, and create and simply transmit content in digital forms from one place to another (Safko & Brake, 2009). Observing the rising popularity of social media, many researchers across disciplines have turned their attention to Web-based social media contexts (Hine, 2000; Kozinets, 2010; Lange, 2007). However, the newly developed Web technologies in social media have not only brought innovative research paradigms, but also introduced new dilemmas and unforeseen challenges in relation to ethical issues. As 'ambiguity,

uncertainty and disagreement are inevitable' (AoIR, 2002, p. 4) in Web2.0-based social media discourse, researchers are often confronted with difficult situations which in turn require them to employ enhanced sensitive and professional judgements to ensure the ethical conduct of research.

Ethics in Web-based research is not a fresh, new topic, but as the Internet itself is in constant flux, ethical issues and agreements related to Internet-based research are continually changing (Kozinets, 2010). In fact, since the early 1990s, Internet-related social phenomena have been included into accounts of research (Markham & Baym, 2009). Only a small group of professionals and ethicists have shared their philosophical concerns in regard to online ethical issues (Ess, 2009, p. 168). However, in spite of ethics being part of Internet research discussion over the past two decades, as yet Internet ethics to conceptualise empirical approaches is still far from being fully explored (Al-Deen & Hendricks, 2011; Buchanan, 2004).

Ethical challenges are tightly intertwined with social phenomena emerging from social media. Firstly, researchers usually adopt codes of ethics developed by IRBs or IECs, but these rules and principles are more relevant to physical status quo. Secondly, as people from different backgrounds are participating online, individual presentations differ from one culture to another. Thus, the myriad of individual behaviour styles have thrown up many cases that leave researchers in a quandary. For example, defining privacy is one of the ongoing tasks for researchers because it is hard to distinguish between private and public. Some online users do not accept their work as public materials, albeit publicly available in online communication mediums (Bruckman, 2004; Kozinets, 2010). In some cases, participants are likely to see their social interactions as private social networking while others present their social interactions as an intentionally public act. The various online users' beliefs and behaviours cause many ethical challenges for researchers in terms of the methods they use and the data they collect and disseminate (Eynon, Schroeder, & Fry, 2009). Lastly, different focuses of research see online data differently. Researchers with linguistic perspectives argue that not all Internet-related research is human subjects research because texts are the main focus of their studies, not the text creators (Bassett & O'Riordan, 2002). Therefore, codes of ethics in human subjects research is for them not beneficial (Bruckman, 2002; Walther, 2002). In sociology, online researchers still accept that Internet-based research is human subjects research, but they argue that informed consent is not always necessary to obtain, especially when there is no direct communication situated between researchers and the researched. They also assert that in the case when researchers need to contact participants to get permission to use their online materials, it is a legal concern like copyright, not a matter of ethical issues (Hookway, 2008). Overall, it seems dealing with Web-based social media ethics is complicated and hard to solve, which undoubtedly requires a great effort from a wider research community to develop a set of approaches that can be flexibly applied to Web-based research in different disciplines and nations.

A NEW DIMENSION OF ETHICAL PHILOSOPHIES IN WEB 2.0 BASED SOCIAL MEDIA RESEARCH

With the belief that philosophical views and ethical issues are interrelated and designing approaches in research should be based on theory which can guide responsible actions, it is worthwhile to discuss ethical philosophies in order to examine ethical diversity dwelling in the online world. Generally, ethical guidelines or protocols are established within a given national tradition. These are heavily influenced by national and cultural structures, and in turn nations and cultures operate specific philosophical views (Ess, 2009; Wiles et al., 2008). Despite social media posing a global diversity in Internet-mediated communication environments, Western ethical approaches have widely influenced many aspects of ethical practice and theory in research. Admittedly, the impetus

of English, the lingua franca of the Web world, is further boosting ethical insights of Western cultures to take an important part in the ethical conduct of Internet-mediated research (AoIR, 2002). Thus, consequentialist and deontologist ethical philosophies fulfil a leading role in academic research practice (Ess, 2009; Ess, Joinson, McKenna, Postmes, & Reips, 2006; Wiles et al., 2008).

Consequentialism takes utilitarian characteristics, dominating ethical decision-making, especially in the US and the UK (Ess, 2009). There are some aspects of computation to make an ethical decision in consequentialism. It measures the costs and benefits of possible actions and takes an action that has a few costs and many benefits. For example, a study involves youth's violent activities online and these activities can be seen as extremely sensitive. According to a utilitarian perspective, although there might be participants' unpleasant experiences involved, which may result in the loss of participants' autonomy, the study can be practicable if the benefits from the findings of the study are greater than its costs such as the loss of participants' autonomy (Ess et al., 2006; Wiles et al., 2008). So, in the US and the UK, codes of ethics typically emphasise the importance of minimising risks (costs) to research participants (Ess et al., 2006). However, there is an argument that the possible outcomes of one act against another are not always measurable (Ess, 2009).

By contrast, deontology is articulated with Kantian views – colloquially speaking, 'a promise is a promise'. It particularly stresses the primary importance of respecting human rights. Thus, regardless of the outcomes of research, researchers must respect and protect human beings. With taking the example addressed in consequentialism, if the study includes negative judgements about youth violent activities online so that the view received by young people participating in online activities might cause harm, socially or emotionally, the study is unlikely to be undertaken according to the deontologist perspective. Apparently, deontology has become widely used among many countries, especially European countries (Ess, 2006). Australia also seems to take a deontologist approach in human subjects research. According to a national statement on ethical conduct in human research, "ethical conduct is more than simply doing the right thing. It involves acting in the right spirit, out of an abiding respect and concern for one's fellow creatures" (National Health and Medical Research Council, 2007, p. 3). In reviewing the national codes of ethics in Australia, there is a strong tendency to emphasise the respect and protection of human beings and focus less on the benefits from research outcome. Inextricably, deontology is situated in absolute nature, which precisely opens it to criticism (Ess, 2009).

Researchers might be at pains to choose one of the two distinctive ethical frameworks and justify their decision making. Ess (2009) suggests that relativism, a meta-ethical framework, can be one solution to the problem. Ethical relativism tolerates differences between the two ethical philosophies. It is the idea that validity of norms, values, and approaches are only relative to or within the domain of a given culture or group of people, which may be rejected by another (Priest, 2010). For example, St.Amant (2004) examines social intercultural communication and interactions in a digital study and exemplifies the difference in cultural expectations between American and Japanese cultures. The passive attitude of Japanese was viewed as unfocused by Americans whereas the open attitude of American was viewed as rude by the Japanese, which means Japanese culture values implicit communication while American culture prefers explicit communication (Hoft, 1995). There is no absolute for all cultures. This argument is illustrated in Figure 1 below.

Absolutism is often introduced as an opposite philosophy of relativism. It, as briefly mentioned as a character of deontology, insists on the view that there are always universally valid norms, beliefs and practices. Such norms, beliefs and practices define what is right and good for all people at all times and in all places. For example, abortion is ethically wrong. Therefore it should never be justified in the view of absolutists (Ess, 2009). St. Amant (2004) interprets absolutism in the way in

which cultural expectations related to credibility might claim genuinely universal validity. Thus, ethical absolutism is in the position to applaud norms, beliefs and practices that agree with a view of what is universally valid. This view is depicted in Figure 1 briefly.

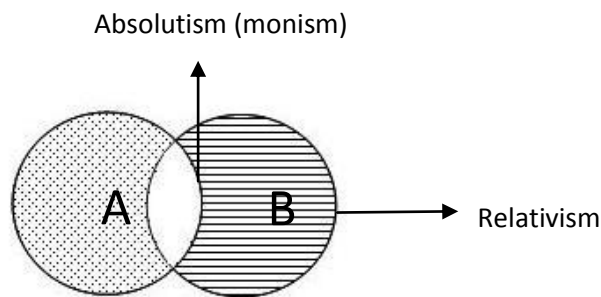


Figure 1. Relativism and absolutism (monism)

Taking the four ethical philosophies into consideration, none of them seems best to fit in the holistic view of the Web context where cultural diversity, hybridisation and transformation are initiated by rapid technology changes. AoIR (2002) proposes pluralism to Internet researchers who need to take diverse ethical frameworks across borders, cultures and practices. Pluralism recognises ethical conflicts, and understands that these conflicts can be resolved with different ethical frameworks. It accepts the fact that there is more than one ethical decision making framework used to analyse and resolve contexts. For example, pluralism with a multi-dimensional approach allows researchers to anticipate how the setting could affect the different ways in which members of different cultures present information. It also allows researchers to prove how various cultures might differ in their communication behaviours according to the same dimensional factors (St.Amant, 2004). Ethical pluralists argue precisely that these diverse values, beliefs and practices are the result of differing interpretations of shared ethical norms. For example, the sensitivity of identification exists in any place, but it can be perceived differently between cultures. Thus, ethical pluralism provides an important way of understanding and responding to the radical differences that researchers encounter, especially at a global level (Ess et al., 2006). Through a pluralist approach, researchers are able to gain different ethical understandings of diverse insights in concert with cultural changes, hybridisation and even the development of third cultures. This is demonstrated in Figure 2 below.

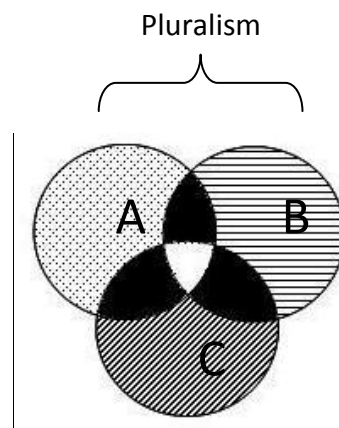


Figure 2. Pluralism


Although Western countries have established many social media sites, people from a wide range of different countries are increasingly using these sites. Social media enable people to link to each other locally and globally, asynchronously and synchronously. The desire for interaction is dynamic and varying, shifting through time and from person to person (Maczewski, Storey, & Hoskins, 2004). Therefore, social media researchers can take pluralism itself as an ideal ethical framework to link with other types of ethical approaches, such as feminism and Confucianism, depending on the focus and scope of their studies (St.Amant, 2004).

ETHICAL RISK LEVELS IN WEB 2.0 SOCIAL MEDIA RESEARCH FROM MULTI-FACETED PERSPECTIVES

There are many cases in Web 2.0 social media research to which codes of ethics do not give a detailed response. With a greater understanding of ethical frameworks, and cultural norms, researchers need to build the capacity for responsible judgements in ethical decision making. One of the fundamental responsible judgements is identifying and minimising risks. Some risks can be easily identified while some can be unexpectedly encountered at any research phase or throughout the research from planning to evaluation procedures. Thus, in order to deal with risks, it is important to take a holistic view of research. In addition, as medium, content and users cannot be easily separated, researchers need to have an enhanced, careful understanding of context and practices within which the individuals are observed (Markham & Baym, 2009). The table below demonstrates how researchers' acts, research field including sub contexts, participants' acts, and data content can result in different levels of ethical risks.

As the nature of social media consisting of several entries appears differently moved by hyperlinks, one event might be different from another event albeit under the same medium. The four scales of measuring ethics variation used in Table 1 could be helpful for researchers when they identify potential risks to conduct research on social media.

Table 1. *Risk levels in Web 2.0 based social media research from multi-faceted perspectives*

Risk Level	Researchers acts	Research field and sub contexts	Participants' acts	Data content
LOW  HIGH	Auto-participant (being a participant)	Public (open to anyone, no registration required to access information)	Overt without identifiable information (Public)	Published without sensitive topic
	Participant observer (being one of participants)	Semi-public (open to most people, but registration is required for participation)	Overt with identifiable information (Public)	Published with sensitive topic
	Open observer (participants know they are being observed)	Semi-privacy (registration is always required to access information, but most people can sign in or up)	Covert without identifiable information (Private)	Unpublished/hidden without sensitive topic
	Passive observer (lurking-merely observe participants)	Privacy (registration is always required and only people with permission can get access)	Covert with identifiable information (Private)	Unpublished/hidden with sensitive topic

Kozinets (2010) provides insightful advice for online researchers. He suggests that researchers need to participate in various online activities like one of the target participants because it is important to maintain power, influence and attention in the same way accepted by the target community. He also suggests that researchers need to take a systematic approach for entering the target online community. During the planning phase, researchers might take a role of observer without revealing themselves, but when contacting people being studied, researchers need to open themselves to the researched. Although some researchers have a negative view on researcher's passive observation, Kozinets (2010) argues that it is a vital step to gain knowledge and information about potential participants and an online-communication medium in order to minimise discomfort between researchers and researched when researchers communicate with the researched (Beaulieu, 2004). Opening researchers' real identities can build trust between researchers and researched under the condition that the researchers do not disrupt the participants' normal activities. If researchers attempt to explore online behaviours in a great depth, researchers can become study subjects (auto-ethnographer) to study online culture through their own experience. In this case, obtaining informed consent can be waived.

Different social media sites have different regulations, restrictions and individual uses, which links to different levels of risk. According to several experienced researchers, a rushed entry to the online world is impeded because building effective online communication skills, appropriate language use and online cultural behaviours require a considerable amount of time and preparation. Languages around the social media world vary not only in the words and grammar used but also in the understanding of the world that participants imply. Thus, researchers need to consider appropriate forms of engagement with participants for each setting because discomforts and potential risks are associated with inappropriate approaches (Buchanan, 2004; Hine, 2005; Kozinets, 2010).

To define privacy, researchers should divide space into two types: public and private. Public space is defined as the space that applies no restriction to interaction and communication, whereas isolated space (private space) is the one that completely constrains communication (Georgiou, 2006). However, sometimes participant behaviours are not easily defined. Even during their participation in research, they possibly change their behaviours from private to public or vice versa. They might display their profile differently on different sites as people act to achieve their desired level of interaction based on interests and individual goals. Therefore, researchers need to consider diverse privacy characters embedded in different sites as well as different interaction entries.

A study with archival data and pre-existing resources publicly available might waive obtaining informed consent if the study does not include individual information and sensitive topics (Kozinets, 2010).

As aforementioned, some researchers, who only use archival data directly collected from a site, argue that collecting data should be seen as a matter of copyright (Hookway, 2008; Walther, 2002). Facebook has taken ownership from its users, which means Facebook can authorise the use of materials available. YouTube, by contrast, has given the ownership and authorship to its users, so anyone who wishes to use videos uploaded onto YouTube, is encouraged to contact the creator in order to get a copy of the video as well as their permission. The problem is that when researchers contact the creators to get permission, inevitably interaction has to take place, which initiates an interaction between researchers and researched. Some research including interaction and communication may be exempt from the ethics committee concern due to the lack of harm the research presents to those being researched (Walther, 2002). However, in codes of ethics in many Western countries, there are no accounts that deal with this case. There is a need to develop

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appropriate approaches to contact online users in order to get permission to use their work which in turn might not be the concern of informed consent.

ETHICAL IMPLICATIONS FOR CONDUCTING WEB 2.0 SOCIAL MEDIA RESEARCH

In reviewing the literature, there are three important points influencing ethical decision making in Web 2.0 social media. These are pluralism (theory), researchers' epistemology (realism), and the research toolkit (empiricism). The research toolkit can include research strategies, codes of ethics, research approaches and the risk scale table (see Table 1). The three aspects can be examined, in a well-grounded way with a triangular frame, to map out diverse ethical viewpoints to cast light upon a research topic. The triangulation theory is widely used in qualitative research in which researchers approach data with different concepts and theories to see how each helps to understand the data in order to examine validity, credibility and trustworthiness of the research (Creswell & Clark, 2007; Greene, 2006).

This paper proposes that the triangulation theory can enhance ethical decision making from multiple perspectives. Such a dimensional approach thus allows researchers to foresee how different research settings, cultures and participants affect ethical decision making in different ways. This expanding concept of a triangular ethical decision making system may be fruitful to draw a more explicit and systematic ethical outline.

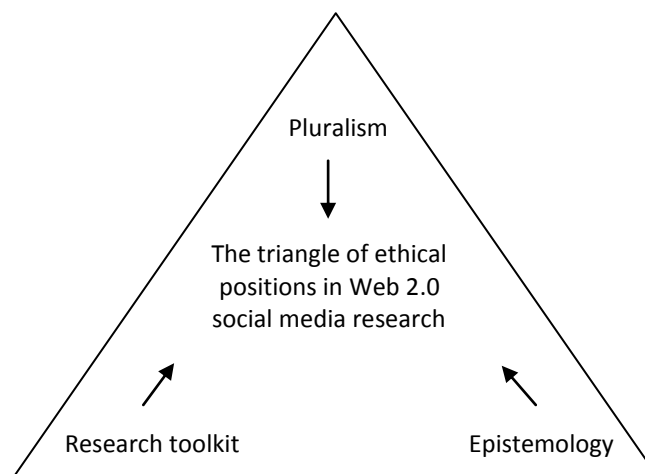


Figure 3. The triangle of ethical positions in social media research

CONCLUSIONS AND FUTURE DIRECTIONS

This paper can only touch on a few ethical issues and challenges as they are consistently changing and challenges are emerging from social media. However, this paper was intended to call for attention in rethinking and reshaping ethical issues embedded in social media research. The rapidly expanding scale and broadening scope of different types of Web 2.0 social media research demands more attention and a broader understanding from online researchers and ethical theoreticians at a managerial level alike because the ethical difficulties that affiliate with new social media technologies seem no longer to be resolved with traditional ethical frameworks and approaches.

It is obvious that there are no absolutely right principles to establish an international understanding that can perfectly fit social media discourse. Unexpected cases and unclear attitudes can occur at

any stage of the research. It is important to take multi-ethical dimensional perspectives along with the research process. Researchers need to expand their own traditional on-ground knowledge of research ethics to include the understanding of social media used and an awareness of their impact on human and social interactions and develop implications to connect with the real world.

The integration of theoretical, realistic and empirical approaches can be a prerequisite to facilitate easing ethical considerations when researchers conduct Web 2.0 social media research. There is a need, however, for further development in response to the diversity of social media steered by the fast evolution of technologies. For further discussion about social media ethics, a wider research community needs to pay attention to answering some primary questions: 1) how do researchers need to interact with online users and interest them in becoming participants; 2) how do researchers initiate a relationship with participants; 3) when do researchers introduce themselves and their studies to the target group of people; 4) how do researchers maintain a trusting relationship with participants and the online community; and 5) how do researchers negotiate with participants who expect their identifiable information to be published.

Researchers need to build and refine their capacity for responsible ethical judgements, as informed by deep understanding of the ethical frameworks, and cultural norms that shape those judgements.

When researchers attempt to explore online behaviours, they need to see how participants actually engage with multiple social media web applications. Researchers need to consider diverse privacy characters embedded in online cultures, including researchers themselves, web contexts, online data, and participant behaviours. This paper closes with a conclusion that, if researchers wish to understand how social media mechanism work and how ethics relates to them, the only solution is that they need to fully participate in the online world.

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Border Crossing Networks: Virtual Reality

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ABSTRACT

Informed by new interdisciplinary network theories and phenomenology this paper set out to undertake a preliminary study of the use of blogs as a tool for intercultural interaction and reflection for students on an international exchange program. The process of analysing blogs lead, however, to a deeper questioning of the premises underlying the “Border Crossings’ exchange program. This, in turn, required analysing the very processes involved in the production of this paper, which is itself a product of ‘interdisciplinary research in a changing and challenging world.”

The international exchange program ‘Border Crossings: People and Places’ is a joint mobility project between four European and four Australian universities (one of which has an offshore campus in Singapore). The program aims to enhance understanding of the issues surrounding global migration which affect Europe and Australia within their wider geo-cultural contexts, including Africa, the Middle East and Asia. The Border Crossings theme addresses cross-cultural communication, international relations, languages, development studies, history, politics, law and humanities. Its primary objective is to encourage innovative curricula, academic cooperation and student mobility through a network of exchanges involving 64 students who crisscross the world to spend a semester at a partner institution and 40 faculty staff who undertake two week exchanges.

As part of its innovative intent, a blog site was created for students to interact online. Thus, the students are linked in a web of relations that span across eight universities and five countries over four semesters between 2011 and 2013. In weekly posts students reflect upon experiences of space, place, movement, transition and culture – as well as subject themes of the project. The blog site is thus a space in which to articulate the everyday experiences of global education, even as it is simultaneously involved in creating the networks that constitute global education.

Through blogging, the Border Crossings mobility program offers more than the movement of bodies between institutions in Euclidean space; it is also crossing (out) borders between reality and virtuality – creating a new geographic imaginary of networked, relational, space.

Keywords: Interdisciplinary, network theories, international student exchange, space and place, phenomenology, relationality, blogs, geographic imaginary.

INTRODUCTION

The 'Border Crossings: People and Places' EU-AU university mobility program is premised on a particular geographic imagination; one where the images of borders are conjured up, in order for these borders to be crisscrossed in the creation of a globalized world. At the same time, the program also recognizes a quite different poetics of space; one where spatial networks are woven by students through the very processes of mobility. In order to facilitate the potential of this matricidal sense of space, the program maintains a blog site for students to record experiences as they transition through exchange – thus creating a web of relations.

Drawing on ideas from network theory and phenomenology – including the geographic imaginary and the experience of space and place – this paper pulls on threads from students' blog posts in order to weave-unweave-reweave some of our imaginings of borders and crossings, and the experience of transitions. The textile reveals an emerging pattern of 'relationality' where the story is never complete and the virtual reality of blogs crosses beyond the borders of the program.

In addition to student mobility, the Border Crossings program also offers the space for faculty mobility between the participating institutions for program administrators and academics. This paper emerges from the interstice of these networks which include: exchange students' blog posts, administration of the program and the blog site, and academic exchange. Its inspiration came through a series of serendipitous encounters between the three authors during the early phases of the Border Crossings mobility program. The not-quite-planned nature of these encounters demonstrates a quality of interdisciplinary research in an internationally networked world; one based on contingency. In turn, the workings of this 'undisciplined' method resonate with notions of geographic imagination, the relational phenomenology of space and place, and networks theories, which this paper thinks with and through.

Beginning with a brief account of the serendipitous encounters that inspired this collaboration, the paper outlines theories that inform this research through insights highlighted from exchange students' blog posts. The paper argues that the use of virtual networks as part of the Border Crossings innovative intent demonstrates ways in which to cross (out) borders and move towards a geographic imagination of relational space that is thoroughly networked.

BACKGROUND

The 'Border Crossings: People and Places' international exchange program brings together eight universities. Four from Europe (EU): Malmö University, Sweden; Utrecht University, the Netherlands; Jagiellonian University, Krakow, Poland; Roma Tre University, Italy; and four from Australia (AU) representing different states and cities of: Flinders University, Adelaide, South Australia; La Trobe University, Melbourne, Victoria; Griffith University, Brisbane, South Queensland; and James Cook University, Townsville and Cairns, North Queensland. The project's design involves innovative curriculum elements that aim to bring together courses with multi-disciplinary academic foci that explore historical and contemporary people movements and their concomitant subjectivities for individuals and groups. The notion of multi-disciplinary flows is furthermore reflected in the creation of a blog site for students to comment on their mobility experiences (Bergknut, 2012), and via academics on exchange, who give cross-disciplinary lectures or seminars, reflect on different curricula, and are encouraged to forge interdisciplinary research links.

Of particular interest to this paper is how notions of disciplines and cross-disciplinary collaborations are based on the same imagination as the geography of crossing borders (cross-disciplinary) and

theories of the interrelations of networks (interdisciplinary). However, there are also other ways to think about disciplinary networks – including the necessary practice of ‘undisciplined’ collaborations. This paper is based on such a method, which arose through a series of serendipitous meetings of the authors.

Fleeting meetings

Anita, an interdisciplinary anthropologist in the Faculty of Arts and Social Sciences was among the first academics to be awarded a grant in 2011 (funded by ICI ECP EU and DEEWR Australia). From James Cook University (JCU) in Townsville, Australia, she travelled to Malmö University in Sweden. In addition to the program, she was invited by the Border Crossings EU Project Coordinator, Knut Bergknut, to a ‘Jubilee Seminar on Internationalizations which happened to be scheduled at Malmö the day after her arrival. During the roundtable of introductions she mentioned that she co-coordinated a Bachelor of Arts subject entitled ‘Our Space: Networks, Narratives and the Making of Place’ which included blogging as an assessment tool (Lundberg & Kuttainen, 2011; Kuttainen et al., 2010; Lundberg et al., 2010).

It was this mention of blogs that caught the interest of the EU Project Coordinator and prompted him to invite Anita to meet Anna – the Border Crossings EU Project and Website Administrator who was transitioning into the blog site manager. After sharing ideas and experiences in order to scope the parameters of the blogs and clarify instructions for students, Anna and Anita discussed how the blogs could offer an opportunity for reflection - not only for students on exchange - but also as a research tool to reflect upon the Border Crossings program. However, two people from two universities hardly constituted a network – which seemed to be at the heart of their inspiration. Again, Knut became the (unwitting) link in the emerging research agenda.

Knut had invited Anita to a further meeting at Jagiellonian University in Krakow, Poland. On the evening of arriving in Krakow, a small dinner was organized for the visitors by the Jagiellonian University Border Crossings Coordinator. Also at dinner was Agnieszka, an academic from the Faculty of International and Political Studies and the Jagiellonian University Administrator of the program. By the time of departure from Krakow two days later, Agnieszka had agreed to collaborate with Anita and Anna. A small research network was formed.

Storied networks

The above story unpicks the threads of the qualities of ‘undisciplined’ research. The serendipitous encounters that came to form the research network are matched by the speed at which these research links were made. The story reveals that none of the members of this research network have met physically for more than a few hours during initial encounters in different locations. Agnieszka and Anna have never met. The nature of this ‘undisciplined’ approach continues to be felt in the interrupted quality of virtual meetings. Only one Skype meeting ever eventuated; while emails are likewise sporadic due to international times zones and heavy semester loads – some emails are auto-returned with ‘out of office’ signatures due to leave breaks.

Similarly the writing of this paper has necessarily formed out of an ‘undisciplined’ network of heterogeneous activities – which nevertheless spin their own threads of connection. Anna maintained the blog site, including discussing with Anita the initial instructions to guide students’ blog posts. In turn these guidelines affect what students’ blog, therefore impacting upon the virtual material on which this paper is premised. Agnieszka undertook a narrative analysis of blog posts, identifying repetitions of themes that struck her as pertinent. Her analysis necessarily relies on the students’ engagement in blogging and Anna’s maintenance of the blog site. Agnieszka cited specific

examples from the blogs to email to Anita, who, in turn, used these samples to think through the theoretical aspects of the paper, while Agnieszka waited for update emails.

Each aspect of this process relied on these networks, not just those that had gone before, but also those that came later, which would reflect back on preceding processes. Contingency plays an important part in this process – as does the reliance on interrelations. This is a densely entangled network.

ENTANGLED NETWORKS AND RELATIONAL SPACE

Often when we set out to explain the theories that inform our insights we create a pattern of stating the theory and then backing it up with an example or quote. This pattern suggests that the virtual domain of theory is privileged while real life (or the virtual life of blog posts) is secondary. However, this was not the case in this study. Neither was it the case that the virtual reality of exchange students' blog posts led to new theories. Rather, both happened together; they co-evolved in a densely networked pattern that remains deeply entangled. This networked space suggests interdisciplinary processes and geographic imaginings that rely on relational ways of being.

Geographic imaginings: borders and overflowing

Borders are lines drawn on maps in a Euclidean imagination of space. But even as these lines are virtual, they are, at the same time very real; they constitute a virtual-reality. Through a shared imagining of these borders we individually feel the phenomenological effects of crossing them. Thus the Border Crossings program is correct in identifying these borders and their crossings and noting that students on exchange experience the bodily affects of transitioning through these geographical imaginings.

This is highlighted in the summary comment on the blog site instructions for students:

Please blog about anything happening in your life, both academic and personal. You decide how personal you want to be, but the blog will be more interesting and fun if you also show the readers a bit about your life and personality. Student exchanges have their ups and downs...great highs, but sometimes loneliness and homesickness. This is your space to share these experiences! (<http://blogg.mah.se/bordercrossings/for-students/blog-instructions/>)

As Massey (2005) elucidates throughout her study of space, the particular geographic imagination of the planet as divided into territories and localities and places where different peoples dwell, informs our understandings of ourselves in relation to others. We carry around images of the world as continents and countries, as states and cities. These imaginings have a powerful effect on our attitudes towards the world and profound effects on our immediate behavior.

Borders and nationalities

For This geographic imagination of borders, in turn, creates a discourse of nationalities. As Agnieszka observes in one of her corresponding emails:

Being in a foreign country, on another continent, the blogging students seem to become more aware of the category of nationality.... Talking about their new social networks, they specify frequently the national origin of the people they socialize with. Often the nationality is accompanied by the sex of a newly met person and the activity they took up together, less often by their name. The exchanges describe their new acquaintances as "Belgian guy" or "Spanish girl". Suddenly nationality (and gender) comes across as one of the most important qualities defining a person.

This observation is borne out by a blog posted by H (Flinders University, Adelaide on exchange at Utrecht University, the Netherlands):

I am living with 3 Dutch guys, 1 Belgian guy ... 1 Chilean guy (who last night along with the Spanish girl and guy I live with were teaching me how to dance) 1 girl from Denmark who I get along very well with and a girl from China.

Entries about social relations in the first weeks of the students' exchange indicate that the students are involved in social networks of other international students and do not have much contact with 'locals'. For instance, a blog posted by J (JCU, Cairns on exchange at Malmö University, Sweden) states she lives with "25 people from almost as many countries". And again, a blog posted by A (Flinders, Adelaide on exchange at Jagiellonian University, Krakow) writes about: "countless Erasmus and university parties [for international students] organized on what seems like most nights of the week!" He also mentions living with international students and hopes he will get the chance to associate with (local) Polish students as well.

In further analyses Agnieszka writes that students explore meanings of their own nationality, and, furthermore, a sense of national behaviors. Thus, H (Flinders, Adelaide - Utrecht, the Netherlands), "claims it has been easy to recognize a fellow Australian student in the class since they've had the same reactions to certain comments; she also indicates some common observations on Dutch reality made by her and her 'Aussie buddy D'." Significantly H specified her 'Aussie Buddy's' name straight away in the first entry whereas students of other nationalities often remained nameless in initial blog entries.

It is as if international students remain unidentified (a blank space) until H gets to know them – until she and they have crossed those pervasive imaginaries of national identities as borders. Thus, H's posts reveal how the geographic imagination is real. In bringing these borders and their discourses up in posts, the students also invite comments from other bloggers, who may (and do) disagree. And through this process students begin to be able to identify borders and also to cross them.

Furthermore, border crossings are emphasized through the curricula of the program, as Agnieszka goes on to note:

H mentions her classes as a way of making her think more critically about Australian law and culture. Looking at her own culture from another point of view and obtaining another perspective through comparisons with other cultures are both engaging and educative to her. What is interesting is that while comparing she continues to use hierarchical categories ("I'm being forced to question whether Australia's common law system is superior to the Dutch civil law system".)

This suggests how a geographic imagination of borders forms part of the philosophy of hierarchical binaries that continues to inform Western thinking. It is these dichotomies that the Border Crossings program challenges (albeit never simply) through student exchange, multi-disciplinary curricula and through the very practice of blogging.

Thus, Agnieszka acknowledges the blog posted by A (Flinders, Adelaide - Malmö, Sweden), stating he:

Contribute to the discussion of (overcoming) stereotypes not only through describing his everyday experience but also through active (academic) learning. He writes a detailed entry about a subject which reminded him "about the dangers of misinformed perceptions, stereotypes and generalizations" and helped students deconstruct borders between a Western Self and non-Western Other.

The same student takes the idea further, extending it beyond the classroom into the blog forum and out to a potential (virtual-real) readership. Having been invited to explore the borders between Self and Other, he urges his readers to explore them as well. He posts two eye-opening videos on the topic and “really really” encourages people to answer crucial questions on the validity of the Us v. The structures: “We should ask ourselves, why do we perceive the world in this way?” (Stasiewicz-Bieńkowska, 2011).

Yet, even as students and academics are deconstructing these binaries, the very words we use are still enmeshed in dichotomous discourses. The title ‘Border Crossings’ itself is tangled in inadvertently repeating the logics of a geographical imaginary of borders (and us/them slashes), that then require being crossed (out). What becomes noticeable in the blog posts is the way students begin to practice working at the interstice - combining multi-disciplinary learning with exchange experiences and posting these through the blog network to other students on exchange and out to the (global) world.

Overflowing borders

Through this weekly practice [the students are encouraged to make one post and one comment per week], there begins to emerge a different sense of geographical imagining in some posts. An early blog by J (Malmö, Sweden - Flinders, Adelaide) is suggestive of involvement in, and the creation of, international, cross-cultural networks overflowing borders. The specifics of actions, nationalities and the inclusion of names [my edits to initials], gives a sense of geography of crisscrossing flows of people through spaces and places.

This morning while having breakfast I was chatting with German J from the townhouse next to me. During my Politics seminar Indonesian S and I joined in sighs over how difficult that topic is, and after that I walked back to the Humanities building with H from Sudan. In the next lecture Italian A was waiting for French C to start her teaching. Spanish C was a bit late, but didn't seem to be too concerned about it. Afterwards I made small talk with Australian D who is also in my Tourism class before Dutch M and I headed over to the Library. She sat down by a computer and I was found by Polish M so I sat down next to him and talked to his friend Polish O and American B. After that I said hi to American M who I met in the first week, and then I headed back to the village, thinking that I need to send Icelandic O a text message. At home I ran into Japanese M who was studying in the living room; I sat down there to talk to her. Later when cleaning time was on the schedule we were joined by Australian A, South African L and S from Singapore. At night I had a Skype conversation with my German boyfriend, telling him all about my international new friends.

Even as the students are making new international connections in specific places of cities, university campuses, faculty buildings, class rooms, libraries, and share accommodation living rooms, they are also staying connected to ‘old’ and other social networks via technologies of Skype, email – and the blog site.

As Massey (2005) eloquently argues, places do not exist of themselves, they are complex meeting places of flows of people and products, and they are the entanglement of histories and stories, meeting places of difference. Geographic imagination is a space of transition. This is a question of how we imagine space and place as interdependent and co-existing.

Yi-FuTuan was an early cultural geographer whose work analyses the relation of space and place in relation with the environment through the perspective of human experience. He discusses experience of space through specific places, which, in turn, evoke different experiences of space. These differences are especially affective when in the process of transitioning from one place to another. Tuan is interested in the cultural specificities of these effects of transition, however, he importantly highlights that this is an experience shared by all humans. During transition a new place will often be initially felt as undifferentiated space, which, as we become more familiar with it, becomes distinctive – developing a sense of place. Thus space and place require each other – their relation allows for definition. At the same time, from the perspective of a place which offers a sense of stability, space with its openness and freedom can elucidate a sense of disorientation and danger. Tuan suggests space offers a sense of movement, while place evokes a pause (Tuan, 1977, p. 6).

Undifferentiated space

The affectivity of space is prominent in students' blog posts. This is especially the case during transition phases as students newly engage in the Borders Crossings program that encompasses the space of four European and four Australian universities; or as they prepare to depart from the sense of place they have created in their host country, to once again be exposed to the open space of the world.

However, even as students write these posts, the blog site itself becomes a space that holds these affects, which in turn induces reactions from academics in the very process of analyzing students' posts. Academics don't just intellectualize; we feel. In an email from Agnieszka I can sense her astonishment when Europe appears in blog posts as an undifferentiated space that elides the differences of Italy, the Netherlands, Poland or Sweden, and specifics of Rome, Utrecht, Krakow and Malmö. It is as if she momentarily cannot recognize this 'Europe' some Australian students imagine. Similarly I feel confused as I read posts in which Australia is conjured as a huge ancient landmass far away in space and time - which uncomfortably reminds me of colonial discourses of conquest premised on the empty space imagery of *Terra Nullius*. Equally I feel 'lost' when students from Adelaide, Melbourne, Brisbane, Townsville or Cairns write of 'Australia', when their nostalgia is more specifically the space of Victoria, South Australia or Queensland – which, in turn, feels very different in the south where Griffith University is located and the tropical far north of James Cook University.

This geographical rendering of a Europe or an Australia is conjured not only by exchange students. This imaginary is one of the premises of the 'EU-AU Border Crossings' program – written into the space of its very title. However, as the subtitle of the program indicates, it is also about 'People and Places'. Likewise it is about mobility as students crisscross the world forming networks. And this aspect of the program is also evoked in the blogs posts as students become more familiar with the nuances of new spaces and begin to experience as sense of place.

Losing space

In a blog post by A (JCU, Cairns - Utrecht, the Netherlands) there is a sense of this movement from "undifferentated" Euclidean space of maps through to examining senses of space. The blog reveals the student at a transition moment where she attempts to understand what she is experiencing through a comparison between Australia and Europe. It is not until she gets to the end of her post that she can hone the specificities of her experience, which is more precisely about her transition from Cairns in North Queensland.

The blog provides both written and visual accounts of A's comparisons. She posts a map comparing the size of Australia to the size of Europe and emphasizes the unfamiliarity of landscape in the Netherlands.

...the Netherlands are different than I am used to; there is a lot of farm land that I pass on the train every time I go into Utrecht. That in itself is not to unusual ... what is strange to me is that there is always cities and towns in the background. There is never just land and open space, everywhere I look there are carefully planned structures ... even forests seem like they all are supposed to be exactly how they are.

...looking at the sky ... there are airplane tracks everywhere, I don't think a day has gone by when I haven't noticed more than several.

In the blog post A places an emphasis on disruption of the usual basic structure for night and day. From the very beginning of the entry she compares and juxtaposes dark and light conditions in her host country to the conditions 'back home'.

The feeling of the changing daylight is something that I find really hard to adjust too; it's almost like the sun no longer dictates when I should be awake. I feel that back home the sun is indicated certain times, like waking up, but here there are not that guide so you have to create it yourself, a very unusual feeling for me.

There is a strong sensation of a 'lost' relation with natural patterns and rhythms. Equally disconcerting are new rhythms that are experienced as overwhelming, at times cacophonous (which also often come together with excitement). Holland is experienced through the sounds of bicycles: "the constant dings of the bells, and the whirring that the wheels make".

Students articulate their feelings through descriptors of 'wrong', unusual, strange. Yet, they remain at a loss to articulate place, for they are suddenly out of place, feeling lost. However, it is not so much that they are lost *in* space, as that they have lost a sense of a gently full space flowing with familiar light, sounds, rhythms and seasons.

At times this sense of loss is articulated through metaphors of romantic love. Blog post by A (Griffith, Brisbane on exchange at Jagiellonian, Krakow)

In my whole life, I have never travelled outside of Australia... I instantly fell in love with Krakow. I would walk down the cobbled streets aimlessly just to look at the architecture and see what this city had in store for me. I found castles with tales of virgin eating dragons, horse drawn carriages ... However, as all love affairs do; my desire for Krakow began to fizzle. I missed all of the comforts that I associated with home ... I was incredibly angry for feeling this way ... But I realised that for someone who has clear and very set routines and lives for continuity and regularity, this was a big and life altering experience.

Loss of a sense of the qualities of rhythmic space is here experienced as momentary anger with self. The blog site, and the act of writing, becomes a holding space for these transitions in affective states – a network where students can express confusion, and feel momentarily safe (cf. Lundberg, 2001: 534; 540-543).

Similarly, a blog post by O (Jagiellonian, Krakow - JCU, Townsville) expresses confusion through a 'lack' of seasons. This disruption to her usual rhythms of life is experienced as alien space.

Like the succession of seasons, yet another thing I hardly notice in Townsville – since the rains stopped it's been 30 degrees every day, every week, and the only sign of the flow of time are the shortening days. And something about it just feels wrong.

Feeling Space

However, a few weeks before, O posted a dramatically different account - that of the space of the wet season. In this post there is a sense of being able to feel the unfamiliar.

It's here, the rain is finally fast in Townsville. The wet season didn't get its name for nothing. It's been bucketing all day every day for almost a week now. Bucketing, not raining, as this is far beyond rain. A tropical rainstorm comes suddenly and is really heavy. Sometimes it disappears as quickly as it came, but it may as well keep going for a whole day or two. Thunderstorms are definitely not as common and long as in August in Poland but can sneak in unnoticed, and the wind that comes with them is hellish.

As students begin to feel the unfamiliar space, they seem to be able to articulate the specifics of the place. In the above post O becomes at home in the local language of the Northern Australian 'big wet'.

Step by step the Border Crossings students adjust to experiencing the strange spaces of different climate through new rhythms of everyday life, as shown in a blog post by A (Flinders, Adelaide - Jagiellonian, Krakow).

For the first time in my life, I can say with conviction that I now truly understand what it feels like to be completely and utterly freezing....The depths of the Cracovian winter are without a doubt the coldest temperatures I have lived in...

With the nearing of my time here, I am beginning to realise that all this wintery stuff has without me noticing, become my daily and normal life. I am now used to rugging up for the cold.... In a few weeks I will be flying back into Adelaide, in what I can only think will be a big climate adjustment ... the extremes of Australian summer, and feel slightly worried for my exchange friend M, who will be experiencing the sizzling heat for the first time.

Transitioning space

Space begins to become familiar through the daily rhythms of bodies and clothes and also through moving through it, which is simultaneously a way of transitioning from undifferentiated space to a more homely sense of place. Transitioning is a way of networking space and feeling the networks of space as not empty, but as a matrix of interrelations.

A blog post by F (Uni Tre, Italy - JCU, Townsville) speaks of a trip with new friends.

Townsville...is far from everything and it is not easy to reach the places, because you need time. In 12 days I think we did as much as possible.

As Agnieszka points out, F brings up the unfamiliarity of Australian space (its vastness in comparison to Europe's), as well as detailed descriptions of the unfamiliar or the exotic "ingredients" of this space (kangaroos, exotic beaches, dingoes). But at the same time, he, and his friends, are familiarizing the space through different means of moving through it (car, ship, plane, snorkeling, swimming and surfboarding) and experiencing it as "one of the best ... in Australia". This sense of networked space is also evident in the network of intra-group relations. At the end of his post he thanks his travel companions: "to our crazy group".

The practice of transitioning as a way of experiencing is likewise part of the process of becoming familiar with the space of places such as cities and towns. Space is not vastness and place is not smallness. As earlier blogs revealed, the large expanse of the Australian country can feel homely, while a town can leave students feeling disorientated, lost and out of place.

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In a blog post, H (Flinders, Adelaide - Utrecht, Holland), writes about her struggle to adjust to the new space of Utrecht and the unfamiliar way of getting places. The student describes the first difficulties as the everyday practice of crossing the road:

Scary is an understatement. For a start they drive on the opposite side of the road and add to that not only 2 lanes of cars but 2 lanes of bikes too....

Several times she mentions her concern about getting lost and presents NOT getting lost as one of her greatest achievements. She also provides a lot of information about biking which she finds both challenging and exhilarating. She decides to “never get off the bike again”. “There is something about riding a bike that takes me back to being a child and having your first taste of freedom.” The change in mobility patterns comes across as one of the most important experiences in H’s early days in Utrecht.

Student mobility is not just about crossing borders, seas and continents - it is also about mobility in the everyday spaces that the students encounter. As students move through space they transition from the sense of undifferentiated alien space to begin to get a more homely sense of place. Transitioning is a movement of the body and mind, both psychological and physical – in relation. Through their moving bodies, students begin to experience the space becoming familiar, embodied. Bodies are not bordered off from space, they are in relation with it. Bodies and our sensory capacities are the connecting tissue to the environment, lived in our everyday experience (Merleau-Ponty 1962; 1968)

As H learns to transition into this new space by riding through the streets of Utrecht on her pushbike, she is reminded of childhood. Her struggles with the harshness of unfamiliarity are softened, moved by her body as it engages with her surroundings. By the end of the post she finds herself in the safe place of childhood – and from this held space she feels she can venture out. Similarly, other students call on the memory of childhood spaces as they speak about transition.

In a blog post from S (Jagiellonian, Krakow - Griffith, Brisbane), this transition becomes a rite of passage:

I decided to sit down and enjoy the moment. I felt good, happy and content. Care free, but not exactly like a child. More like a young adult ... somewhere along the road between the past and the future, between there and somewhere else, I grew up a little without noticing it. It’s scary but I guess that’s how it’s supposed to be.

Intertwining: space and place

The human relation with our surroundings is also suggestive of the relation between space and place and the intricate networks that form around these concepts. Thus students’ blogs would suddenly catch our attention as they revealed not only moments of a loss of space, but also bursts of finding spaces within places. Space and place cross outside the borders of maps, refusing to stand still.

Blog post S (Jagiellonian, Krakow - Griffith, Brisbane):

There are a lot of Asians in Brisbane; some of them wear really nice stuff so looking at them is quite pleasurable I have to say. To be honest, I’ve never met any Asian people in my age before, but that changed quickly after coming to Brisbane.

It is not only Australia he discovers through exchange. He discovers Asia as well. This networked world of Australia-Asia relations is new to his senses. Like other early posts of some Australian students arriving in Europe, his description does not yet relate the nuances of Chinese, Thai, Indonesian, Japanese, Hmong, and Asian-Australian etc.

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In another blog post, as S travels from Brisbane to visit Melbourne, he finds yet another continent in Australia – he describes ‘feeling amazed’ and ‘enchanted’, he mentions the specifics of ‘the antique city tram’ and old ‘Flinders Station’.

The nearby Federation Square reminded me of Europe. Felt like a part of Europe in Australia. The place remembered me what I love about the Old Continent– it’s historical architecture. The history that you can feel and experience with every step you take ... The buildings reminded me of France, Italy, Spain, Germany and even...New Orleans (??).... It was just beautiful.

He notes that although his description may appear ‘chaotic’ or undisciplined, it’s not. The many spaces within one place, felt just right. Suddenly finding Europe (and more) in Melbourne is suggestive of the interrelations of spaces and places and embodied memories. Furthermore, his blog post states: ‘the place remembered me’. Revealing (perhaps through a typo) a sense of relationality - even as we remember places, we also experience these places we have inhabited as remembering us (Bachelard, 1969; Lundberg, 2008, p. 8).

As S notes, the transitions of space itself – appearing in unexpected places - are surprising and disconcerting, even as they are pleasant.

The first place we saw was Queen Victoria Market ... I got quite surprised by what I saw. The whole place didn’t even look like an Australian market ... it looked like a Polish one, with dozens of stands with low quality versions of popular products, fake accessories, and shoes perfect for grandmas.

Matricidal Space and Flowing Place

Theorists of space and place argue that these concepts are in relation with each other. This was the point made by the cultural geographer, Yi-Fu Tuan who also rearticulates place and space not as ‘thing’ and ‘no-thing’ but also as movement and pause. Similarly, Doreen Massey, in her geography of mind and imagination argues that places are not existing of themselves, but are spatial meetings of flows. Another theorist, Gaston Bachelard, writes of the poetics of space through the place of the home. His early phenomenology is suggestive of the affective qualities of space and its poises or creative potential.

All these theorists offer ways of thinking through affective, embodied experience. The complexity of these seemingly simple terms ‘space’ and ‘place’ requires these theorists to try to elucidate how these concepts are in relation. They move beyond hierarchical binaries, crossing imaginary borders, suggesting ways of being in a world that is global and thoroughly networked.

Another way of thinking about these same ideas is through matrixial space and flowing place. In bringing these words together, I hope to create poetic meanings that resonate and ripple outwards, beyond our everyday understandings. Matrix is a term that itself has a shifting quality. It refers to the womb, giving a sense of held space. The term also refers to a situation or surrounding substance from which something else grows; a medium that disappears into the background even as it allows for creation – overflowing place and place that flows.

As I work through these ideas, an email from Agnieszka helps me to think. In turn, her email is based on a student’s blog post that she finds particularly suggestive of space, making of place and networking. The blog post by J (Malmö, Sweden - Flinders, Adelaide) describes ‘The Village’, a part of Flinders University on-campus accommodation “that frankly rocks”. The Village hosts over 300 people and the student describes the significance of space (including its human design) for creating networks. Networks, and the sense of responsibility for everyone’s wellbeing, are being creatively

constructed by both the space design and by networks already existing. She describes aspects of the Village, including the CC Community Centre and her unit.

It is a house, very big house even, which all of us Villagers have access to with our key cards. It is like a big hanging out place, a fritidsgård, a relaxing, big living room.” And then: “There are ... a team of people working together to make sure we are all happy, with ourselves and our housemates. Every unit has an RC, a contact person to go to should there be any issues of any kind. There are also a group of very lovely housekeeping ladies who check in on Wednesday mornings, making sure everybody has done that week’s cleaning task the night before.” She also describes her life with her flatmates: “We hang out in the living room together; we eat together ... At the same time there is the very much appreciated sanctuary of your own room...”. “...friends around and great spaces for studying and fun.

This is a womblike space that is networked through, overflowing with potential. A designed space that creates a place that is thoroughly peopled.

Resonating networks

New network theory arises out of mathematics and flows into dispersed disciplines and fields of study. The theory demonstrates the complex patterning involved in networks, how they cluster, flow, form hubs and disperse. These patterns cross imaginary borders – thus the same patterning can be seen in the cosmos, cyberspace, energy grids, ecology and the brain. These patterns are also revealed in the flows of post-fordist manufacture, global finances, diasporas of people, or all of these forming nexuses through cities. The blog post above gives a fine sense of the resonating qualities of these networks as they flow through a specific place – making it a home.

This same sense of making place, and making university your home, is what is trying to be achieved through the Bachelor of Arts subject: Our Space: Networks, Narratives and the Making of Place, that I mentioned on arriving at Malmö University on academic exchange – which was the catalyst to forming the small research network which has been involved in writing this paper. The subject examines how we come to make sense of our experience of space and place, examining place not as a static entity on a map but rather as a product of networks in the social, political, economic and natural world. Like the Border Crossings mobility program it encourages students to consider how the world is connected, including their own connection to the world via social virtual and global networks. It also introduces students to blogging and encourages them to make connections between everyday life and academic ideas, experiences, transitions and to be able to adapt to ‘super-complexities’ of a changing and challenging world (Kuttainen et al., 2010).

The subject shares many aspects with the Border Crossings mobility program - many more than a shared use of blogging as a tool would at first suggest. There is a sense here of resonating networks. Cyber places also have the potential (not always realized) to form resonating networks. This was the aim of introducing a blog site for students as part of the Border Crossings mobility program. This paper goes some way in showing how this aim has materialized. But at the same time, the paper argues that students’ posts cross the borders of the program and flow beyond the place of this blog site.

It was an aside to Agnieszka’s analysis of student blog posts that alerted Anita to the neverending quality of networks and blogs as real virtual places that are simultaneously spaces of flows. Her marginal note suggests that borders are imaginary geographies and that the Border Crossings mobility program has already crossed (out) the borders it is imaginatively premised on. She wrote:

BY THE WAY ☺ S (Jagiellonian, Krakow- at Griffith, Brisbane) started in his own blog - where he posts Australian pictures and narratives (some of them really fascinating). I’m not sure

whether this is relevant to our paper – it is just to let you know how BC experiences are spreading

Not only is Agnieszka's hunch relevant, but it demonstrates how the fabric of networks are at work in the complex space of international research collaboration. One of the most difficult experiences of these distant collaborations is precisely this necessary ability to stay in the margins and rely on each other's contributions, trusting the pieces of information or analysis offered by others in the network, imagining what our research collaborators require, sending emails with exclamation marks, capitalisations and emoticons in order to hold each other in relation. To cross this border – and try to know it all – would be to break the network flow.

CONCLUSION

As the next round of students head off from four universities and cities in Australia to four universities and countries in Europe, and vice-versa, the network is already there, weaving webs which hold students as they transition around the globe.

In the words of J from Utrecht in Holland on exchange at La Trobe in Melbourne:

Talking to T, A and K who is going to Malmö and Utrecht I could really recognize all the questions they had to the ones I had before coming here to Melbourne and even for my last semester in Utrecht. You have so many questions, where are you to live? ... What are you to expect from the University itself? Will I like it? How are the people living there? And it continues ... I think that all of us currently on our exchange can recognize ourselves in this.

What the Border Crossings blogs offer is 'something more'. The blogs cross geographically imagined borders between continents and countries and states, between cultures, and between notions of fact and fiction, virtual and real. They take exchange students, project administrators, analyzing academics – further. The network creates a matrix that demonstrates that the world is never unnetworked.

Continuing the blog post of J:

What I can answer now with certainty...is that independent of where you are going you are going to have a great time and many of the questions you had before going (the ones I had at least) will all be answered as soon as you arrive.

Yet, the conclusion to the blog post is still too soon, too fast, too conclusive. For networks never end – and we never arrive. There are only moments to sit and appreciate the feeling of this connectedness of self within the matrix of space, and then we are off again, venturing bodily towards new spaces – and imaginatively creating new places in which to dwell; for just another moment. As Anita writes the final words to this concluding section, she receives an email from Agnieszka who passes on a blog Anna had posted to the students on the Border Crossing blog site in late 2011. Even as our own small interdisciplinary research network was weaving its gossamer threads, other networks were forming on the horizon.

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Encouraging Students to Study Science: A New Model for Universities to Engage School Students with Science

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ABSTRACT

Year on year fewer students choose to study science at university. This trend is particularly affecting the study of physical sciences in the western world (e.g. physics in Britain). This situation has led universities and employers to try and encourage more students into science subjects through the development of numerous science outreach initiatives such as guest lectures and summer schools. However, much of this work is of an *ad-hoc* nature, with little understanding of the underlying motivations and conditions that guide student subject selection. Therefore, we have developed a simplified model for school student engagement that can guide university-initiated science outreach programs. This model takes into account factors such as the different life stages of the student, the myriad of influences that affect career decisions and resource availability. As part of this work we also present a synthesis of the research around increasing progression into higher education, with a particular focus on work with minority groups. As experienced practitioners and researchers in science outreach we have developed an easy to use set of guidelines that are applicable in the real-world situation of limited budgets, time and staff resources.

Keywords: Outreach, widening participation, universities, science, marketing.

INTRODUCTION AND BACKGROUND

The number of students that are studying science is decreasing worldwide. This trend is especially prevalent in OECD countries with both governments and universities expressing concern over the decreasing numbers of students that are interested in pursuing a scientific career. In the United States the numbers of students expressing an interest in science throughout their school career has been decreasing year on year. International comparisons suggests that American students are falling behind their international counterparts, an effect that is concerning at the tertiary education and governmental level (Stake & Nickens, 2005). This effect is particularly noted within the physical sciences where university enrolment growth has been minimal or non-existent while enrolment in

the biological sciences or non-science courses grows rapidly (Stake & Nickens, 2005). This trend is at odds with international government policies that are looking to science and technology as economic saviours (BusinessRoundtable, 2005). Science and technology are seen as the new way for economies to generate products and raise GDP. Without science development countries fear they will be unable to generate the new high-value products of the future (Academies, 2005; Bush, 2006; European Commission, 2004; Ministry of Science, 2008) Therefore, the lack of recruitment of students into science courses at university is attracting high level attention and governments are expecting universities to address this issue.

University marketing is a multifaceted and expanding field. The new economic model of universities as businesses means that many institutions are beginning to charge fees for study (historically more common in the U.S) and this in turn drives students into the model of consumer (Harrison-Walker, 2010). This then forces a feedback loop whereby Universities are forced into a highly competitive marketing drive to recruit students (Harrison-Walker, 2010). Research into the factors that influence student choice in the last years of high school show that they conform to a adapted 7 “P” marketing model analysing programme, price, promotion, people, prospectus, prominence and place. Of these factors students prioritise the programme (whether an institution is well-regarded within their chosen field of study) and price (fees, living costs and distance from home) (Maringe, 2006). In response to this consumerist approach from students, universities market extensively to students in their last years of high school. These campaigns are generally based on business-led market theory (concepts such as brand-loyalty, profitability, market segmentation) (Angulo, Pergelova, & Rialp, 2010; Bennett & Ali-Choudhury, 2009; Canterbury, 2000). This model pitches one university against another, and often one faculty against another, in direct competition (as determined by the capitalist model) and does not attempt to engage with the lifelong journey of the student and their education choices.

Within the larger trend of falling student numbers in sciences there is ongoing concern regarding the participation rates of women and minorities in the physical sciences (Academies, 2005; Bray and. Timewell, 2011; Statistics, 2006). This problem is often approached separately from pure recruitment, generally under the banner of equity or widening participation programmes (Cuny & Aspray, 2002; Frieze & Blum, 2002; Gale et al., 2009). The product of this is a duality within the University system, with one arm focussing on increasing recruitment within a marketing or economics paradigm and another arm tackling equity issues by running programmes targeted at a particular type of student (Licata & Frankwick, 1996). While marketing strategies tend to focus on mass-media campaigns and big spends, equity programs tend to be focussed, individualistic and developed on a limited budget. Often these two sectors within a university or science faculty are working independently of one another and rarely, if ever, are these objectives combined and co-ordinated (Gale, et al., 2009). However, as graduate numbers decrease alongside a strong political led agenda to increase science and technology student numbers, a new approach to student requirement needs to be undertaken.

This paper looks at the literature surrounding career decisions, existing programme development and develops a new model for university engagement. By combining research from a large variety of sources, with our own experience in outreach development, we suggest a programme that works alongside students to develop and maintain an interest in science that Universities can use as a framework for increasing the numbers in science and technology courses.

LITERATURE REVIEW

How do people decide what they want to do for a job and when do they make these decisions? These two questions lie at the heart of any quest to understand how to increase the number of students that study science. Without a comprehensive understanding of how people choose their career path, we can have little hope of changing or influencing their choices. Strangely however, this knowledge is often omitted from outreach programme design. Therefore, we will now present an overview of the current theories around career development and how this knowledge pertains to student recruitment into tertiary level science courses.

How do people make career decisions?

Holland's 1997 theory of vocational personalities suggests that people match their career choices to their personality type (realistic, investigative, artistic, social, enterprising or conventional) whereas Super's theory takes a developmental approach and supposes that career choice is a fluid process that develops over an individual life span (Holland, 1997; Super, Savickas, & M., 1996). Both of these ideals are expressed within the Social Learning Theory of Career Decision Making (SLTCDM).

SLTCDM describes four factors relevant to career decision making (reviewed in Niles & Hartung, 2000):

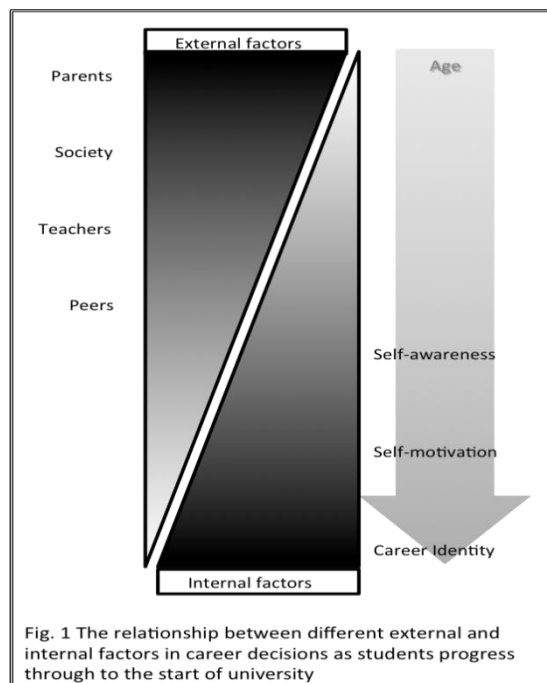
- *Genetic ability*: inherited traits such as sex, intelligence, athletic ability, artistic talent etc.
- *Environmental conditions*: social, cultural and political factors such as financial sponsorship programmes, family traditions, familial and societal expectations.
- *Learning experiences*: the combinations of natural talent with positive learning experiences, exposure to positively reinforcing messages and situations such as good teachers, museums, science clubs or role models.
- *Task approach skills*: work habits, mental set, emotional responses and problem-solving skills.

Another theory that highlights similar factors as expressed above but in a different way is the Social Cognitive Career Choice Model (SCCCM) (Bandura, 1986; Fouad, Smith, & Zao, 2002; Lent, Brown, & Hackett, 1994). Under this model the important criteria for career choice are (from (Hazari, et al., 2010):

- *Curriculum elements*: specific content or curriculum designs which enhance interest in a particular subject area
- *Classroom/school characteristics*: class size, resourcing, public or private education, single sex etc
- *Teacher characteristics*: equitable behaviour, communication, background
- *Student characteristics*: educational ability, test scores, socio-economic background, self perception
- *Relationships*: with peers, family, role models
- *Out of school experiences*: informal education opportunities (e.g. museums, science clubs), childhood experiences.

Examine the two theories side by side it becomes obvious that both internal and external factors are at play in developing a career choice. Both theories suggests that career decisions are linked to the development of the individual through their life history suggesting a pattern as follows:

Both theories work on the assumption that career choice stems from an internal self-interest but that this interest is subject to external forces. In addition there is an underlying belief that career choice is linked to an intrinsic element of interest in a subject or career field. This is a modern, largely western, way of viewing career options. The prioritising of self-interest above societal and parental judgements echoes the increasing predominance of individual self-worth that is often observed in youth culture in western societies today. This individualism is not necessarily a negative factor but time may prove it to be a social trend rather than a stable construct.



In terms of career choice the internal factors combine with external factors to develop a what is referred to as a career identity. Within science development of a career identity is often discussed as whether or not a student identifies with scientists and can visualise themselves as a scientist (Aschbacher, Li, & Roth, 2010; Cleaves, 2005; Maltese & Tai, 2009; Stake & Nickens, 2005). This projection is described as the potential self or possible future self (Stake & Nickens, 2005) and is influenced several factors. Theories such as SCCCT and SLTCMD provide some clues as to the drivers at play in the development of these projections. In particular important external factors are parents, teachers and peer interactions and societal expectations. Balanced with this are the internal factors of self-awareness, self-motivation, development and sustained interest in a topic.

The role of parents

From the earliest age, parents are an important force in our lives therefore it is not surprising that this influence extends to the selection of career. The simplest analysis shows that parental education almost directly correlates to university ambitions (Roksa & Potter, 2011; Schuette, Ponton, & Charlton, 2012). This is most often seen within the context of minority groups where students may be “first-in-family” to attend university. Such students are difficult to attract into the

tertiary setting and many outreach programs are designed to work alongside these students to increase their aspirations to include higher education (Gale, et al., 2009).

Parental influence has been demonstrated to be one of the earliest and most powerful effectors surrounding career decisions. Buzzanell et al. (2011) interviewed 800 children from China, Lebanon, Belgium and the United States in order to examine how stable the effect of parents are on career choices across societies. Their research shows that independent of society influences, parents are a major influence on the perception of work and career. From as young as 4 years old children were aware of the work that their parents did, were internalising positive and negative impressions of work and beginning to understand different careers. The oldest children in the study were ten years old and by this stage many had made preliminary decisions about their career track. The influence of the parents was often obvious in terms of the level of ambition (aiming for careers requiring higher education or not) and the subtle support given for some subjects above others (for example choices of access to extra-curricular clubs and activities) (Buzzanell, Berkelaar, & Kisselburgh, 2011).

One major influence of parents is on a child's perception of self worth. The career theories outlined above show that children will naturally gravitate towards careers which they enjoy and enjoyment is often closely linked to academic achievement (Aschbacher, et al., 2010; Beaton et al., 1996; Shrigley, 1990; Simpson & Steve Oliver, 1990). From the earliest age parents guide their children in developing skills and oversee their academic advancement. In this way parents have a subtle ongoing influence on what children think they can and cannot do. Mothers in particular have been shown to influence self-belief in terms of career (Eccles (Parsons) et al., 1983; Jacobs & Eccels, 2000). Bleeker and Jacobs (2004) demonstrated that mother's beliefs about their children's abilities in maths and science were shaped by gender stereotype and were highly predictive. The mother's beliefs were also shown to influence career choice and helped determine whether or not a child had an internal belief that they could achieve in science or maths (Bleeker & Jacobs, 2004).

A final role of parents is in providing financial support for a student and mediating the transition to a higher education organisation. Parents who have negotiated their own way through the tertiary system are better equipped to assist their children with this transition and tertiary qualified parents are more likely to be financially secure (Downs, et al., 2008). Parents who are unsure about the demands of higher education or are worried about the cost may give negative reinforcement to students, particularly if they are wanting to follow highly competitive subjects or those with a high level of difficulty (threatening long term success) (Downs, et al., 2008; Kahneman & Tversky, 1984). Many widening participation projects aim to address these logistical concerns but may miss many of the subtle long term effects of the family environment (Gale, et al., 2009).

The role of teachers

Particularly during adolescence, teachers exert a powerful influence on career selection. The most obvious route for this pressure is through the development of self-belief and subject-specific achievement. The role of quality teaching in student achievement is highly controversial (Cohen, 1981; Goldhaber & Brewer, 1997; Hattie, 2004; Rockoff, 2004; Rubie-Davies, Hattie, & Hamilton, 2006). Work by John Hattie demonstrates that after the students own ability and drive to succeed, teachers are the most important factor in achievement at school (Hattie, 2004). His research over several years suggests that teachers contribute up to 30% of the variance in student achievement and as such quality teaching is vital to the school system (Hattie, 2004). This is obviously important from a career selection point of view as a good science teacher may increase the sense of self achievement of students in this area and therefore help to sustain their interest in the subject. This factor is particularly pertinent to the physical sciences, which are historically deemed difficult or

hard subjects to master (Cheng, Payne, & Witherspoon, 1995; Crawley & Black, 1992). These subjects are also often linked to a parental belief of genetic ability, either you “get” science or you don’t (Bleeker & Jacobs, 2004; Gouthier, Manzoli, & Ramani, 2008; Kelly, 1981). A good teacher may be able to mould these expectations or experiences and so make science more accessible to a wider range of students. Quality science teaching is therefore an important component in sustaining scientific interest throughout a child’s school career.

In addition to maintaining self-belief and supporting academic achievement the role of the teacher often extends into the realm of mentor. Students seek teacher’s views on higher education providers, possible courses and expectations of achievement (Munro & Elsom, 2000). The teachers own backgrounds, education, social networks and beliefs strongly influence how they communicate with the students about their options in higher education. This set of unconscious behaviours and expectations can be referred to as the teachers habitus, The “durable, transposable dispositions” that are developed early in an individual’s life and manifest in manner, styles, gait and language (from Oliver & Kettley, 2010). A teacher’s expectation, knowledge and sense of achievement within science, can profoundly influence a student’s perception of their own abilities. This is particularly relevant to the reported gender bias within the physical sciences. Teachers who believe, often unconsciously, that males are better than females in the mathematical and physical sciences transfer this expectation to their students and their understanding of their potential career options (Aschbacher, et al., 2010; Jones & Wheatley, 1990; Osborne, Simon, & Collins, 2003).

Peer interactions and society expectations

Adolescents seek the support and approval of peers. Thus peer support influences what students think is valuable, enjoyable and appropriate (Duncan, 1993; Patrick et al., 1999). These factors are closely linked to the ongoing motivation that a student has for a particular activity, and how much time they are likely to devote to developing their ability within that field (Patrick, et al., 1999). Stake and Nickens (2005) demonstrate that having peers engaged and supportive of science activities positively encouraged individual expectations of a future life as a scientist. Therefore, programmes which allow the participants to form social networks with scientifically-minded peers are likely to have a greater long term impact (Davies & Kandel, 1981; Stake & Nickens, 2005).

Different cultures value different subjects and career choices. Asian families are reported to favour scientific careers as they are associated with long term advantages versus the more personally attractive choices made by Caucasian students (Woodrow, 1996). Buzzanell et al. (2011) reported Chinese families supplying young children (under 10 years old) with 100-page science books and building laboratories in their homes to encourage and develop scientific skills. Conversely, other cultures may perceive school-based science as a western construct and therefore struggle to connect with it (Lemke, 2001). The underlying epistemologies of science may be an anathema to cultural knowledge and therefore science may be devalued or shunned within certain cultural contexts (Cunningham, 2000).

Career counsellors and role models

Other individuals may affect student career choices for example career counsellors or exposure to role models however, the current evidence suggests that the overall impact of these people is minimal. The role of career counsellors is similar to the role of teachers, with similar issues and problems around habitus expected to be relevant. Research has demonstrated that, similar to teachers, the effectiveness of career counselling is directly related to the motivation and abilities of the individual counsellor (Taurere, 2010). Therefore, for the purposes of this work we have grouped

career counsellors with science subject teachers with the intention that resources should be targeted to individuals with sufficient interest and willingness to engage with the processes.

Lastly, role models have been documented to be a powerful force in career decisions (Maltese & Tai, 2009). Programmes implemented around raising aspirations, especially for students from low socio-economic areas, often utilise role models to showcase possibilities outside the immediate environment of the student (Gale, et al., 2009). The use of role models is supported and acknowledged but their influence is often compromised by the ongoing, direct influences of parents, teachers and peers.

When do students make career decisions?

The two main forms of outreach, marketing or widening participation programmes, are largely aimed at students studying at high school. Generally, the youngest students that universities interact with are at least 14 years old. The exception to this is through participation in science festivals such as “Scientriffic” (Wrexham, Wales) or “Incredible Science” (Auckland, New Zealand). These initiatives are generally collaborative and may target younger students through exciting science shows or experiment demonstrations. However, criticism is often raised by faculty members that these events, are a waste of resource as they don’t allow direct interaction with the target audience (B. J. Bray, 2010). So, should universities be trying to engage a younger audience or should resource be prioritised to students in the final years of high school? When do students make the decision about what to study?

As outlined above, children are exposed to work and careers from a very early age (Buzzanell, et al., 2011). From as young as 2 or 3 children are aware of their own parents work situation and start to develop their own understanding of work options. By age 5 or 6 children can confidently answer the question “so, what do you want to be when you grow up?” Answers are typically stereotypical (e.g. I want to drive trains, be a footballer, a singer) but demonstrate that both children and adults are already starting to focus on future career options. Research demonstrates that throughout primary school students are evaluating, investigating and selecting possible career options (Brown, Ortiz-Núñez, & Taylor, 2011; Buzzanell, et al., 2011; Helwig, 2008; Lindahl, 2003; Schuette, et al., 2012; Tai, Qi Liu, Maltese, & Fan, 2006). It is widely accepted that by around 10-12 years of age (late primary school) students have largely decided the general field of work that they want to be involved with (Lindahl, 2003). It is of note that these early decisions are relatively stable (Helwig, 2008; Schuette, et al., 2012; Tai, et al., 2006). When interviewing scientists and graduate students of science, Maltese and Tai (2009), highlighted a trend for people who select this trajectory to decide early in life that this is what they wanted. Sixty-five percent of interviewees reported that their interest in science developed before their middle school years (around 11-14 years of age) with a further 30% indicating that their interest in science developed during middle or high school (11-18 years). Males tended to report an interest in science earlier than females with 80% of male interviewees declaring that they had decided on a science career before they attended high school. Female students were slightly more inclined to develop science interest during their high school years (14% of females developed their science interest in high school as compared to 10% of males) (Maltese & Tai, 2009).

By 16 years of age, roughly half way through high school, the majority of students have selected their probable career path and are starting to refine their subject options (Brown, et al., 2011; Lindahl, 2003; Schuette, et al., 2012). What stands out about the student choices during high school is that negative influences are more powerful than positive ones. During this time, female students in particular, are vulnerable to influences such as poor academic performance, peer- and self-

perception (Cleaves, 2005). It is common for students, females in particular, to select out of science subjects as they are no longer able to imagine their future selves as scientists (Aschbacher, et al., 2010; Stake & Nickens, 2005). This vulnerability to negative messages is one that is often overlooked in the development of outreach and marketing programmes.

Overall, this evidence suggests that universities often target students too late to effect real change in their career options. If outreach programmes are to attract students into sciences, they need to address the wide range of influences that input into student's lives and they need to engage with students while they are making their career choices. The information available to date suggests that to be effective in increasing the number of students electing to take science subjects universities need to put in place programmes that work with students before they reach high school and there needs to be a greater understanding of the importance of science during the primary years.

So what turns students onto science when they are young? Why do some students gravitate towards science subjects and reject others? Evidence suggests that those students that persist with science found it interesting and fun from a young age. They felt able to achieve within the science context and they found it relevant to their world. Students that continued along the science path to tertiary study often have the support of their families and it is within accepted social norms for them to pursue a highly academic and perhaps financially risky career path. They were supported by teachers who made science fun, relevant and achievable. This assisted them in forming peer groups where studying science was the norm which in turn allowed them the space to achieve to a high level. With all these competing factors and inputs can universities possibly hope to have any influence? We think the answer is yes, but a rethink of how they utilise and mobilise their resources needs to change.

THE SOLUTION

Our model rests on three key ideals, engagement with potential students' needs to happen sooner, it needs to be sustained over the life of the student and it needs to reach beyond the bounds of the student to encompass their parents, teachers and peers.

Engagement needs to happen sooner

Based on the evidence, we believe that universities should be involved with and support initiatives that allow primary aged students to participate in science. These activities should be designed to be fun and motivational, showcasing science as part of everyday life and relevant to everyone. The criticism that younger students are unlikely to follow into higher education, that the university has no place in this space, are unfounded. Higher education institutes have access to a myriad of resources and people that are of immense value to the primary school sector. In particular undergraduate and graduate students can gain a wealth of skills through interacting with young students. One elegant solution is the creation of courses within the Bachelor of Science pathway that are focussed on teaching. These can provide a resource of talented, enthusiastic young people who can work within a primary classroom to inspire and champion science. Often these courses are created for university students who are considering going directly onto teachers college and experience in a classroom environment is invaluable. Additionally, universities should encourage site-visits for primary aged children to allow them to view their facilities. An advantage of working with younger students is that they are less susceptible to the negative reinforcement that can influence teenagers as younger students are often less acutely aware of the social elements of a university campus. In terms of child development the pre-teen years are associated with a period of exploration where the individual is more receptive to new concepts therefore, younger students are also more open to

alternative career options (Eccles, 1999). This openness can be harnessed and built upon to open up student expectations and possible future selves.

Engagement needs to be sustained

One off, one day events are easy to run but have little impact amongst the variety of other factors in the life of a student. To be really effective the university needs to be seen as an ongoing part of the student journey. For this reason we suggest that universities participate in programmes that focus on a range of age groups and that they target the age groups differently. At the younger age, pre-teen years, the focus is likely to be on excitement, fun and opportunity. As students approach their teens they face more serious challenges in their school work, this should be reflected in a change in focus in terms of engagement. Programmes which support student academic achievement are vital. However, it should be realised that through the mid-teens students are uniquely sensitive to negative images (Eccles, 1999; Freeman, 1997), for this reason we suggest that this is the ideal time to support achievement through indirect channels. Career literature identifies the strong influence that role models play at this time of life, including parents, teachers and career counsellors (Hodkinson & Sparkes, 1997). Therefore, engaging with the students in the middle-school (intermediate) and early high school through these alternate routes is key to the success of these programs. The final phase of interaction is then during the last two years of high school. Outreach during this time is a pure marketing exercise, choosing one institution above the others. It is not a time to convert students to science or science disciplines as these messages are likely to be lost on this age group. Few if any students are motivated to change their career focus at this late stage of their career (Cleaves, 2005). Therefore, programmes need to focus on the advantages (price, papers offered, lifestyle, prestige) of one institution over another. Parents are also likely to be very interested in this stage of the decision making and should not be excluded from these discussions.

Engagement needs to include parents, teachers and peers

Universities are often very willing to talk directly to senior students but are less interested in working alongside teachers, career counsellors or parents to explore career options. This is a mistake, the literature clearly shows that these external people play an important role in guiding and supporting the individual.

Parents perform an increasingly important role in guiding the career choices of their children. From the youngest age the actions, expectations and prejudices of the parents is absorbed by students. One avenue for increasing the number of students in science is to increase the science literacy of the parents. Outreach programmes such as science festivals play an important role in normalising science within a family. Often the challenge is reaching out to communities and families where science is not valued, such families are not the ones that traditionally attend science fairs. Events which take the science to non-traditional locations (supermarkets, a marae, community halls) are worthy of investment. These events need to be supported by the provision of good written material that parents can take with them, these need to outline what careers are available in science, the earning potential for BSc graduates, what courses are available as well as the application pathways?

Supporting quality teaching is another key area. Engaging with and supporting local teachers has a multiplying effect, each teacher will be teaching between 20 and 100 students a year or perhaps 4,000 students over a lifetime. Teachers can be a universities best advocate. Great teachers help develop great scientists, their influence should not be under-estimated. We would advocate universities working to support and develop teachers, through offering continuing training and up-skilling in science through to access to university resources. Teacher open days have been used

successfully to market universities to teachers but this should be used with caution around the habitus of the teacher. If they are likely to feel out of place in the campus environment then this attitude may be passed through to students, if this is likely to occur it can either be tackled head on or perhaps a site visit is not the most appropriate form of outreach.

Lastly, peers. To develop peer relationships we suggest that at least some programmes are formed as to break up school groups. If a student is able to remain within their normal cohort of friends, and this group is anti-science then it is unlikely that the student will feel comfortable pursuing study in science. Therefore, activities such as summer schools, site visits which allow for group interaction (not merely sitting in a lecture group for a day) and online environments that facilitate social networking are all valuable tools. Institutions should be looking to provide environments where a student that may be isolated in terms of science interest in their local school can develop networks with peers that support and encourage science achievement, even if this is maintained across geographical boundaries.

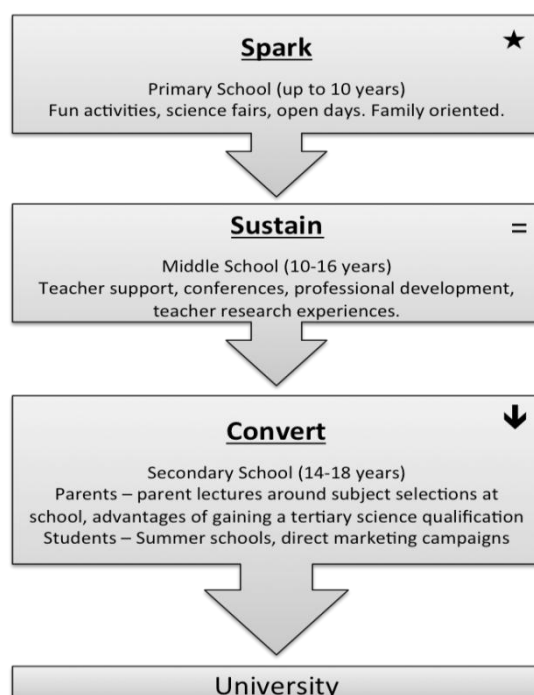


Fig 2. An outline of a new model for universities to engage school students with science.

We suggest universities work towards an integrated policy for recruitment for students into scientific courses. This should start with sparking an interest in science (at primary level), through science fairs or outreach programmes that target both parents and children. The second phase (through intermediate and lower secondary) should sustain interest. This is best achieved through an indirect method particularly through working with teachers. Models for this might include teacher professional development courses or teacher conferences and may involve either on-site visits or outreach as appropriate. The last phase is to convert a student's interest in science into tertiary enrolments which can be done through open days, marketing material and summer schools. Marketing material needs to be inclusive of parents and caregivers as they are highly influential in decision making at this time.

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‘Out of Depth’: Untrained Learning Support Assistants to Deliver Meaningful Post–sixteen Education?

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ABSTRACT

Educational legislative frameworks, in which college learning support assistants (LSAs) work and train in England, developed and intensified internationally and nationally, during the last three and a half decades. Policy developments became the springboard for modernisation in classroom practice striving towards equality and non-discrimination for *all* learners, including those with learning difficulties and disabilities (LDD).

However, there is currently no national training framework to support the professional development of LSAs. To be most effective in their roles, literature argues that ‘development’ plays a vital part in the professional learning of educational staff. Ineffective classroom practice resulted from having untrained ‘professionals’ and contradicted the ‘inclusive’ ethos of the college in which one of the researchers conducted her research, demonstrating that social injustice occurred with regard to the educational service the college provided to the learners with LDD.

This paper demonstrates how action research, using reflexive and evaluative methods such as diaries, tutorials, field notes and self-assessment questionnaires, explored the systemic shortfalls within the policy context for a college for further education (FE), hindering LSAs personal and professional development and thereby their efficacy in ‘inclusive’ classrooms.

Keywords: Inclusive further education, learning support assistants, professional learning; learners with learning difficulties and disabilities, policy, social justice, systemic thinking.

INTRODUCTION

Describe Wright Mills (1959, p. 8) argues that in all research the social scientist needs to distinguish between the personal difficulty, the environment in which the difficulty occurs and the concerns of the wider community. According to Wright Mills ‘troubles’ refers to the individual self within his/her ‘immediate milieu’ and as something which stimulates ‘wilful activity’. In this study ‘troubles’ (Wright Mills, 1959, p. 8) refers to the practical dilemmas and moral convictions one of the researchers experienced as a college lecturer of learners with learning difficulties and disabilities (LDD) and the untrained learning support assistants (LSAs) who supported them. ‘Issues’, according

to Wright Mills (1959, p. 8), are when these inner difficulties interrelate with the wider social context and the difficulties become 'public matter'. The researcher's experience and inner dissatisfaction with the work, and the poor training conditions for LSAs was also a persistent issue amongst her colleagues within the college. The lack of appropriate training for college LSAs', in turn, fed into a wider public discourse about the 'equality' and 'social rights' of young people with LDD.

Given one of the researcher's paid employments, that of engaging with learners who have LDD, it made sense to engage with disability research as a contextual base. Quite rightly, Goodley and Van Hove (2005) say that disability studies are not simply a paradigm used to develop academic competence, but on a global scale, a phenomenon that aims to promote radical knowledge, activism and practice in relation to disability. Barnes et al., (2002) agree that disability studies are worldwide emancipating studies to promote disability research while simultaneously promoting the disabled people's movement.

In line with Goodley and Van Hove (2005) and Barnes et al., (2002) our research aimed to be a two-way promotion. Whilst it increases social theory through new knowledge and understanding in the field of global disability studies, it seeks to promote social change within practice.

BACKGROUND

Educational policy frameworks have developed, reformed and intensified internationally, nationally and locally over the last three to four decades (Barton, 2010; DfEE 1997; Jones, 2003; Morgan, 2000; Robson & Bailey, 2008; UNESCO, 1994). These policy developments became the springboard for reform and modernisation in classroom practice which strives towards equality and non-discrimination, advantaging all learners on the grounds of social justice (Benjamin, 2002; Bines, 1986; Dyson & Slee, 2001; Farrell & Ainscow, 2003; Hryniewicz, 2007; Fairclough, 2008; Warnock, 2005). The college in England where one of the researchers conducted her research prided itself on how socially 'inclusive' they had become in following equal opportunity policies based on their global and national policy reform (DfES, 2001; Dyson & Slee, 2001; Farrell, 2003; Rioux & Pinto, 2010). Policies, procedures and codes of conduct are key to effective practice because they inform colleges of the purpose, methods and opportunities in which staff, including support staff such as LSAs', work and train.

Reform, according to The General Teaching Council for England, launched a new era to include post-sixteen learners with LDD who were previously excluded from mainstream education (TGTC, 2002, p. 2). Following a social model of support (Allan, 2010; Barton 2010; Bines, 1986), colleges began to employ LSAs' to support the individual learning needs of these learners. National Occupational Standards for college LSAs' were launched in October 2006 (Skills for Business, 2006) and were followed by the LLUK 2006 publication of a professional profile for college LSAs', alongside professional standards for college tutors and trainers (Armitage et al., 2007; Pring et al., 2009). However, these documents did not include a training framework and, therefore, there are no particular training requirements for LSAs' who support young disabled people in colleges. This situation heightens the importance of the need for professional learning and development for LSAs' within the college itself if the intentions of reform are to be achieved.

The research aim was to explore the professional learning and development of college LSAs' of whom nine voluntarily participated in the Enhanced Learning Support Assistant Programme (ELSAP). ELSAP was designed and developed by one of the researchers and acted as a catalyst to facilitate a range of learning opportunities for LSAs' who, at the time of the research, did not have the necessary qualifications to work as educators of young people with disabilities. ELSAP therefore

formed an integral part of the research and LSAs' learning experiences were critically explored through key research questions. Several questions reflected the complex dynamics and multi-layered-ness of the college working environment in which LSAs' work and train. Others aimed to enhance an understanding and knowledge of LSAs' professional learning and how this affects their practice while others explored the conditions of that learning and ways in which LSAs' practice could be changed, to rightfully bring about a more rigorous and meaningful teaching input for learners with disabilities.

For the purpose of this paper, we shall critically present findings from the data generated by the explorative action research process over the fourteen-week period of ELSAP implementation. Narrative themes provided rich, descriptive meaning and understanding about the learning journeys of the participants, as they emerged from dynamic, interactive social situations and incidents within the 'inclusive' college classroom between participant LSAs' and post-sixteen learners (Denzin & Lincoln, 2008; McMillan & Schumacher, 2006; Robson, 2002; Yin, 1993). Analysis focuses on how college policy provided, or did not provide, a framework for the work and training of college LSAs'. This paper analyses and critiques the sociological tools needed to implement 'inclusive', ethical and meaningful education for young people with LDD. Attention is drawn to issues that relate to policy theory and how these feed into practice. In order to understand and illuminate these issues within a wider, emergent sociology of disability education (Slee, 2010), we need to embrace a critical approach. Slee (2010, p. 562) refers in similar terms to the on-going and ever-existing socio-political dilemmas around disability education as 'the disability movement's political struggle'.

THE RESEARCH STUDY: EXPLORING COLLEGE LEARNING SUPPORT ASSISTANT'S WORK AND TRAINING

Research Process

'The social and educational world is a messy place, full of contradictions, richness, complexity, connectedness, conjunctions and disjunctions. It is multi-layered' (Cohen, Manion & Morrison, 2011, p.219). We employed qualitative explorative action research (Cohen et al., 2011; McNiff and Whitehead, 2010) with elements of ethnography and evaluation for triangulation purposes (when using multiple methods), to generate rich data that reflected the dynamic complexity and interrelated (Bronfenbrenner, 2005; Von Bertalanffy, 1933) 'inclusive' college context in which nine participant LSAs' work, learn and train.

The action research employed included the following methods: reflective diaries (Stevens & Cooper, 2009); pre and post self-assessment questionnaires (Gall et al., 2007); observations (McMillan, 2008); pre and post knowledge evaluations (Cohen et al., 2011); written tutorials (Seidman, 2006) and one of the researcher's own field notes (Robson, 2002).

Data

For Interpretation of data demonstrates that issues occurred due to the college's lack of organisational support and led to stress and a lack of confidence in the ability of LSAs' to cope in a number of situations. Kelly an LSA wrote, 'I struggled to make sense of what I should be doing and initially thought I made a mistake to take the job. I didn't know where to turn for advice'. Along the same lines, a different LSA Rose expressed her view,

'It would have been helpful to be introduced to key members of staff on the first day. I met my class tutors much later, only when the teaching started. There was an interim period

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between when the college started back after Christmas and when the students returned and I could have been of help to get resources and materials ready [...] I was looking for something constructive to do, I remember that I roamed the corridors while I felt misplaced' (Rose).

Moira reflectively wrote in her dairy,

If I had a mentor to discuss my weaknesses with, it would have helped me to think of how I can become better. Talking to someone who understands the complexities of our work with older learners and, who can suggest what in my practice I can change to be better would have been supportive (Moira).

This evidence indicates the need for organisational and structural strategic input and support for college LSAs' who were appointed to support learners with LDD. This is in line with earlier studies completed by educational researchers such as Green and Milbourne (1998) and Robson and Bailey (2008). What is needed are more ruthlessly defined appointment requirements and qualifications, appropriate induction procedures, regular appraisals and identification of training needs, better management of the tasks being assigned to LSAs' and for them to be given a fuller understanding of their role and responsibilities, not only for their own benefit and well-being but in order that learners with LDD are given a more socially 'inclusive' and just education (Tomlinson, 2010; Barton, 2010). The following issues also arose from a critical engagement with data:

No Recruitment and Appointment Strategy

According to Dyson (1999), educational institutions e.g. colleges for FE, follow a human rights position that focuses on the social inclusion of those who have previously been excluded from social participation:

The ethics and rights discourse, particularly when it is joined by the politics discourse, tends to operate with a concept of social justice that is based on the notion of a participatory democracy in which none are excluded or oppressed, and which celebrates difference (Dyson, 1999, p. 48).

From this we can argue that learners with LDD in colleges are entitled to the non-discriminative fair practice those with disabilities receive in schools and universities, and that colleges must give serious consideration to the practicalities of how they are going to include these learners with LDD to ensure, not only a meaningful, but also a just and ethical implementation of governmental policies on equality. Literature indicates that for LSAs' to be effective in their roles when supporting post-sixteen learners with LDD they need to either be qualified or actively supported in achieving a relevant qualification to work with disability in an educational environment (Bailey & Robson, 2004; Morgan, 2000). It can be argued that efforts to bridge the gap between the implementation of 'inclusive' policies which result in the enrolment of learners with LDD on vocational programmes and the selection of trained and qualified people to support these learners, must start with the application of an appropriate recruitment and appointment strategy to ensure the appointment of the most appropriate staff. This should be done by means of a structured, well-planned staged approach (set of guidelines) for the advertising, sifting and appointment of the best candidate LSA. Data below shows that the college where one of the researchers conducted her research lacked systematic, fair procedures on a managerial macro level (Bronfenbrenner, 2005), for appointing LSAs' to support post-sixteen learners with a range of LDD (Attwood et al., 2005).

As researchers, we became aware of the limitations which existed within the college's recruitment and appointment strategy which resulted in the employment of LSAs' to support young people with disabilities who did not have the necessary experience of working with disability or knowledge or

experience of teaching or working in an educational environment. A field note of one of the researchers reads:

During an informal meeting to clarify some aspects about the implementation of ELSAP with prospective LSA participants today, I am slightly concerned that I may have to redo parts of the programme to add more 'punch'. Quite a few LSAs' appear to have no or very little previous experience, or relevant qualifications to match their roles supporting LDD. Anne supports Entry Level, Claire and Gemma dyslexia, Wilma autism, Emma slow learners. This raises questions in my mind about the application process which these individuals went through. Was there an 'appointment framework' with specifications or were they being appointed on an ad-hoc basis with no specifications as to whom these individuals should be, what interests or prior knowledge/experiences they should have in preparation for their work with disability, qualifications that may have been an advantage to their work and responsibilities etc? (Field note)

The systemic and comprehensive role of a college LSA involves supporting the college, the tutor or lecturer, the curriculum as well as the learner (Skills for Business, 2006; Woolfson & Trussel, 2005). For LSAs' to be competent and effective in their roles, they need to have the relevant knowledge and experience to do so (Giangreco & Doyle, 2007). Written Tutorials completed with participant LSAs' before commencing on ELSAP substantiate that LSAs' were not subject to any specified requirements as part of an appointment framework. Instead they show they were appointed on a 'trial and error' basis which highlights the ad hoc way in which appointments were made. 'I have no previous experience of working in an educational setting and neither do I have any relevant qualifications. I worked as a nurse in a Radiography department for many years' (Gemma). 'None – no previous experience of learning support. I have volunteered at the Infant School for a short period of time and I am also a member of St. Johns' (Mary). 'I have two children of my own, and I am renovating my own cottage. I am also chair of playgroup. I guess I have no experience of working with learners' (Wilma).

The above narratives and field note compound and confirm how a lack of FE policy context and procedures (formal guidelines) impacted on the application process followed by the college where one of the researchers worked at the time of the research. It seems new LSAs' were appointed without any thought being given as to what interests, skills or knowledge they had to bring to the inclusive college classrooms in which they would work, despite the fact that the learners in an 'inclusive' setting will have a wide range of abilities and potential disabilities (Bailey & Robson, 2004; Valle & Conner, 2011). This was highlighted by the knowledge that neither a suitable job description, nor a person specification were used as a strategy during the appointment process to help ensure that the most appropriate and suitably experienced or qualified individuals were appointed (Fox, 2000). Crucially, those who have an interest in 'teaching' and working with post-sixteen learners with LDD in a very specific niche within FE (Norwich, 2008), need to be sought out.

As part of the research process to support the LSAs' who found themselves in these difficult and stressful working situations, the ELSAP content intervened by holistically focussing in Unit 01 on familiarising LSAs' with their role and responsibilities, Unit 02, focussed on explaining the importance of working within national and legal frameworks and Unit 03, on empowering LSAs' with teaching and support strategies. Unit 04, made a closer investigation of supporting LDD and, vitally important Unit 05, on how LSAs' can continuously review their own practice for development and improvement. ELSAP theory played an essential part in providing newly appointed LSAs' with critical information on how to carry out their roles. Whereas authors such as Lorenz (2002), Giangreco and Doyle (2007) refer to the highly skilled special needs assistants who support children with disabilities

in schools, Green and Milbourne (1998), Bailey and Robson (2004) and Robson and Bailey (2008), speak about the effectiveness of 'making learning support work' in FE (Green & Milbourne, 1998, p. 3). According to Armitage et al., (2006) skills may include, being flexible, an ability to counsel and guide, to challenge discrimination and facilitate equal opportunities and to support effective learning, to name only a few.

Brownlow (1994, p. 35) argues in a paper that a key element to effective learning support (referring to Staff College, Bristol where she conducted her survey) was that 'adequate systems for learning support' should be in place for colleges who deliver HE programmes. Although this point was argued more than two decades ago, it has become even more important within the current climate of budget constraints, regardless of which programme is delivered. Well-informed and knowledgeable LSAs' form an integral and fundamental part of any 'adequate' system for teaching and learning, wherever they work in the educational sector, schools, FE or Higher Education (HE) (Pring et al., 2009).

We think it is fair to conclude that at this particular college where LSAs' were appointed with no particular experience, knowledge or qualifications, the responsibility of the college to support these LSAs' with an appropriate programme for their professional development (e.g. ELSAP) was vital to enlighten (and empower) LSAs' in their role and practice with LDD. The conceptual framework underpinning this research highlights how the complex interrelatedness of the wider (in this case, lack of a proper appointment strategy) college environment can influence practice in classrooms (Hoban, 2002). As seen from the above, highly skilled staff (Fox, 2000), are needed to perform specific roles in 'inclusive' post-sixteen classrooms. With no recruitment and selection strategy as to who should be identified and appointed as the fittest candidate, a college will struggle to provide effective, meaningful education to individuals with LDD (Rogers, 2007). This study aims to change and improve the classroom practice of LSAs' appointed on an ad-hoc basis (Robson & Bailey, 2008), through their participation on a professional learning system (Hoban 2002). Informed LSAs' and changed practice not only benefit learners with LDD but also provide the social justice this particular group of post-sixteen learners are entitled to.

Induction Dilemma for New College Learning Support Assistants

In an effort to find information about LSAs' who were new to their role in FE and the problems they faced, we discovered some facts in the 1994 writings of Ashcroft and Foreman-Peck (1994). These refer to the feelings of new tutors and staff in that they experience sensations of being overwhelmed which results in a tendency to focus only on coping with their immediate responsibilities (Ashcroft & Foreman-Peck, 1994). They believe that the way the stresses of a new role and work should be dealt with is through informal discussion and collaboration with colleagues. This implies the facilitation of appropriate induction procedures by an organisation. In line with this Gravells (2007, p. 10) wrote about being new to working in adult learning, 'when you start work as a tutor, you should receive an induction to the organisation and details about your role and responsibilities'. The same rationale should apply for college LSAs'. A parallel can be drawn with the literature of Fox (2000, p. 5) who explains that LSAs' who support SEN in schools need to be 'introduced in the right way so that pupil's perception of their role is clear'. This can also be said for LSAs' who support disability in colleges.

For the LSAs' who took part in this research, evidence from the data shows that they had very different experiences from that advocated by Gravells (2007) or Fox (2000) in the quotes above. They were not introduced in any informal (or formal) manner to their new work environment and what it involved. During initial tutorials held with LSA participants, Kelly wrote, 'I did not have an

induction when I started', Rose reflected along the same lines, 'no-one invited me to an induction event' and Gemma said, 'an induction would have helped me to settle in'.

Further light on the 'induction' issue was shed before our commencement with the design and development of ELSAP. One of the researchers convened and conducted eighteen informal meetings with work colleagues to discuss and establish the training needs of their LSAs'. The following narrative shows a comment made by a Key Skills tutor during such a meeting and which was kept as a field note.

Miriam thinks it will be helpful if LSAs' in general cover topics such as: Code of conduct, Confidentiality, Equal Opportunity, Child Protection again after their initial induction sessions, because a lot of this will go over their heads at induction but they should be better able to see the relevance of it after they have been here a while (Field note).

This quote indicates that a colleague (Miriam) was keen for her LSAs' to undergo training in which specific topics on college policy and procedure were covered. What was of more interest though was that she also mentioned 'initial induction' thereby implying her belief that her LSAs' had been subjected to a process where these topics were discussed with them as new members of staff. This was not, however, the case. Two further extracts from LSAs' written tutorials show that LSAs' did not attend inductions when they were newly appointed to commence work in classrooms at the college where the research was conducted. LSAs' (Claire and Emma) wrote, 'I am keen to undertake training for I get lost around the college. I did not have any introduction as to how the college works or where I can find stuff' (Claire), and 'I want to know more about the colleges legislation etc ... I know Benita will help me to achieve this, for I was not told anything when I started' (Emma). This new knowledge about LSAs' experiences with regard to not being formally or informally inducted when they started at the college heightened the importance of the investigations with other lecturers and tutors at the college about the training needs of LSAs' and what, as a result, needed to be built into ELSAP content.

Comments during the informal needs analysis 'meetings' with colleagues as well as extracts from tutorials with LSAs' were vital in informing us about the development of a relevant theory/curriculum for ELSAP. As an example of this when the following topics arose, theory on data protection, equal opportunity, child protection, health and safety, behavioural management and Every Child Matters (ECM) these were integrated into and explained in Unit 02 of ELSAP under the heading - Understanding Legal and National Requirements. An extract from one of the researcher's field notes on 30/10/06 reads,

I am satisfied about the 'ingredients' for Unit 02. I have taken into account all the comments from colleagues on what information needs to be included for LSAs' to be more effective when dealing with accidents and emergencies, confidentiality issues and a general code of conduct when working with LLDD to encourage aspects of inclusion and ECM (Field note).

Legislative frameworks (DfES, 2003) form a vital force that underpins our practice, and without an understanding of these, LSAs' are not equipped for a number of situations such as, for example, the Health and Safety of learners. The college policy on 'health and safety' must be explained to new members of staff, in this case LSAs' who were new to their roles, as part of the college induction process for new members of staff.

Critically, based on the research questions asked and the data gathered it was not possible to assume that ELSAP would bring about changes in the practice of the participant LSAs' in the classroom. Nor could it be assumed that post-sixteen learners would benefit from LSAs' new knowledge and understanding of policy after taking part in ELSAP. However, there is evidence which

shows that LSAs', who were new to their support role in college classrooms, were not inducted and the research question that explores potential hindrances or barriers for LSAs' professional learning highlighted this as a problem or 'dilemma' as Ashcroft and Foreman-Peck (1994, p. 5) refer to it, 'We believe that more frustration results from ignoring these dilemmas'. Nilsson (2010) wrote that for the purpose of learning and developing it is important to eliminate all barriers. Data indicates that not having had an induction as a new member of staff was a hindrance in the overall professional learning of those LSAs' who took part in the research (Ashcroft & Foreman-Peck, 1994; Hryniewicz, 2007).

This fact underlines the conceptual framework of this study which aims to understand how the complexity of the wider college environment can play a role and be a key condition to ensure educational change (Hoban, 2002). The data analysed and argued here about new LSAs' not being inducted appropriately as new members of staff to either their work environment or role, philosophically focuses our attention on the dynamics and interrelatedness of the college environment and how what happens on, for example, a management level (macro level) can influence the work of LSAs' on a micro level (Bronfenbrenner, 2005). The lack on the part of the college management to follow an induction procedure with new LSAs', became a systemic condition, which hindered the professional development of new LSAs' (Hoban, 2002).

No Appraisals or Continuous Professional Development

Important parallels can be drawn between the need for lecturers and tutors who teach in post-compulsory or further education and the LSAs' who work alongside them, to engage in self-evaluation and reflective practice (Armitage et al., 2003). Reece and Walker (2005) refer to reflection as an integral part, together with experience and learning, of a cyclic model in which these reciprocally influence each other to optimise learning. This is in line with literature acknowledging the importance of new approaches (Steward, 2009) in adult learning and development by recognising the individual's professional needs and inspiring pragmatic engagement. Hryniewicz (2007, p. 323) wrote, 'self-evaluation is important for everyone, and is the basis of the current Ofsted inspection processes. As seen above, reflective practice (Schön, 1987) is not only an institutional process, but can also be seen as the 'vehicle' with which to review own knowledge and understanding about one's practice in order to identify training needs.

Pring et al., (2009, p. 82) write in *Education for All* the following: 'professional development requires the establishment of reasonable targets [...] to spell out what constitutes a good teacher, and in the light of that analysis, to set appropriate teaching targets'. Nilsson (2010, p. 300) emphasises the need to undertake such professional development by saying, '...there are insufficient numbers of qualified staff to support people with learning disabilities in need'. He later suggests 'work-based' (Nilsson, 2010, p.302) learning as a training option for people who work in naturalistic environments in existing professional roles. Appraisal procedures must be facilitated by the organisation and must be central to plans for LSAs' professional development.

The LSAs' who participated in this research all had the advantage of working in existing roles as LSAs' with opportunities to reflect on their work and learning. Data from Written Tutorials before the LSAs' commenced on ELSAP indicated that they all were seeking opportunities for training and professional development. McConkey and Collins (2010, p. 136) agree with the above mentioned authors and continue to further explain that the focus of such professional development should be, 'to provide opportunities for people to declare their aspirations as well as the development of a plan to assist in achieving these stated goals'. The following extracts from written tutorials completed before participant LSAs' commenced on ELSAP are in alignment with field notes from one of the

researcher's research diary. These indicate that opportunities to discuss training needs and opportunities to generate action plans for development, had not taken place for the LSAs' who took part in our research, even though they were in a good position to reflect on their work and training needs as existing workers.

I have been working at the college now for 13 months in my existing LSA role. I have not been called in to review my practice in an appraisal-style manner since I started. I am keen to do this ELSAP studies with you because I have not been given any training or opportunities to train and gain new knowledge. I work in various roles and I do need to use different skills. I mostly work on the GCSE programme supporting 3 very different students. I mean they each have different needs (Mary).

Mary expresses here her concerns over not being given professional development opportunities which would include opportunities to talk and reflect on her strengths and weaknesses as a professional LSA at the college. Analysis of this data shows that she has not had the opportunity to take part in vitally important evaluations to increase her knowledge and understanding about how she delivers support. Although it cannot be substantiated assumptions can most probably be made that her practice has been compromised. A narrative from Moira below, states more or less the same.

Apart from my LSA role I teach Basic Skills on two evenings. I have worked at this college for 5 years already and not once had an appraisal about my work. Before this I volunteered as a helper in schools and I still work as a Sunday School Leader. I think I do not qualify for training because LSAs' are not full-time members of staff or qualified teachers (Moira).

Upon engaging with data from written tutorials one of the researchers reflected on the following from her own field notes written during the research process. The extract indicates her reflections as both researcher and practitioner, two of the roles (amongst others) she played within the research:

I read the written tutorials tonight and realised the need for LSAs' to do training for their own professional learning and development are even greater. I am not a middle manager in the college structure and did not realise before tonight that LSAs' are not subjected to appraisals to review their performance. I did notice that LSAs' were not mentioned on our (tutors and lecturers) training day schemes for CPD days and always assumed that they had separate events scheduled for them for CPD. Shockingly, it appears not to be the case (Field note).

The above narratives and field note indicate the lack of an appraisal and CPD framework for LSAs' within the college. They show that no college policy or procedure specifications existed to support staff members to review their practice in classrooms and offer them appropriate professional learning opportunities as a result of such reviews. Moore (2007) accentuates the need for college policies and procedures to echo the need for LSAs' to engage in relevant and appropriate professional learning events. Parallels between the need for LSAs' to be subjected to CPD, and the requirement for FE lecturers and tutors to undergo CPD which is vital to their effectiveness during practice, can be drawn (Armitage et al., 2006; Norwich, 2008; Pring et al., 2009; Reece & Walker, 2005). Due to this lack of a professional development strategy for college LSAs' at the time of our research, the development and implementation of ELSAP (Units 01 to 05), with their aim of providing a tailor-made professional learning intervention for participant LSAs', was vitally important and key to improving their practice.

From the research we can conclude that not having had an appraisal or similar opportunity to reflect on their practice, or having had their training needs identified and addressed as a result of such reviews, a significant hindrance was posed to the professional development of the college LSA

participants in our research study. Theorising the above data indicates that the reciprocal nature of the multi-systemic college environment (Bronfenbrenner, 2005) shows that, for classroom practice to be effective (Armitage et al., 2006; Reece & Walker, 2005), LSAs' need to have regular reviews and opportunities to reflect on their practice (Schön, 1987) in order to identify their training needs (Pring et al., 2009).

Unexpected or Sudden Additional Responsibilities

What is in the name LSA? According to Wright, et al., (2006, p. 34), support staff in colleges are known by a number of different names: 'language support teachers; additional support workers; learning support workers and curriculum support workers'. According to Wright, et al., (2006) these names, indicative of the roles support staff have, may change over time, but what does not change is the support that they can provide. Wright et al., (2006, p. 34) continue to outline and describe an interesting list of strategies as to how LSAs' should be managed to ensure 'students receive high-quality input, leading to an overall cohesive educational experience' in contrast to LSAs' providing support that is not valued and which may lead the LSA to lose her/his morale.

The first and most vital point on the strategy list according to Wright et al., (2006) is the existence of a college policy on the deployment of LSAs'. The question can be asked, 'are support roles and responsibilities clearly identified and relayed to those concerned?' (Wright et al., 2006, p. 35). Effective management should ensure that lecturers, tutors and LSAs' are clear about their professional relationship and what they can expect from each other. Job descriptions should provide clarity on roles and tasks and should rule out any misunderstandings (Fox, 2000). Although literature does not make specific mention of the issues around 'unexpected or sudden duties', it is nevertheless clear that a policy for the deployment of tasks should be in place to reduce misunderstandings and to ensure efficiency on the part of the LSAs'. This is in accord with Russell et al., (2005, p. 176) who argues that there is a 'lack of clarity in roles and responsibilities between teachers and LSAs'. Russell et al., (2005, p. 176) continue further to make a link between this uncertainty and a need for training with the following words 'the link between role and training is an obvious one'.

The literature emphasises the need for greater clarity in defining the role and responsibilities of LSAs' and how they are deployed in the classroom. At present they are often given additional tasks or placed in positions of authority which as the following extracts from their reflective diaries show, take them beyond the responsibilities they are properly equipped to undertake.

Over the five years that I have been working at the college, I often have to cover for my class tutors when they are sick. There is usually no time for me to get ready or prepare as I am often handed the work just before the class is about to start. Although I have some idea of the work, I feel that I don't have enough on it to actually teach the session. This is very stressful and can leave me feeling drained and tired (Moira).

Although Moira felt unable to cope with the teaching of a class, she still agreed to do so. There may be various reasons for this but this is not the place to speculate about them. Further narratives also show that LSAs' often found themselves in 'over their heads' due to sudden unannounced changes in their roles or more responsibility being imposed upon them, without any discussion or the necessary support as demonstrated by Wilma in her reflective diary.

I work in the Painting and Decorating department of the college... In this area we try to teach the students how to paint and hang wallpaper without making too much of a mess. This process will hopefully prepare them for work within a company or maybe their own business. I am employed to work 1-1 with a student who has Asperger's Syndrome. He is a willing

student who is eager to please but finds lessons difficult as he doesn't take in all that has been said. On Thursday we began by giving a second coat of eggshell paint to the ceiling in his work area, I have to constantly remind him to take care and not go over the lines or get wet paint on the walls. Part way through the lessons the tutor asked me to help two more students who also seemed to struggle to paint their ceilings. I diverted my attention and walked across to the others which were on the other side of the room. My 1-1 student who was halfway up a ladder and who needed constant prompting became very agitated and could not cope without me (Moir).

On the surface it appears that the learner with Asperger Syndrome has become too dependent on his LSA. It has been thought that all learners, including those with LDD, should be able to cope with subtle changes to their daily activities if required, and still succeed at what they are doing. However, upon further exploration, the point here is that the participant LSA has been appointed according to her contract to support only the learner with Asperger Syndrome and not to support other learners as well. Previous analysis supports the notion that it takes careful consideration and skill to support a learner with Asperger Syndrome during the learning process and unexpected additional work assignments or tasks can increase stress for the LSA which may compromise the meaningful education of the specific learner with LDD.

In this extract from data, the tutor, unintentionally, overstepped their boundary by instructing the LSA to take on two further learners without clarifying it with her beforehand. This indicates poor communication between the college's operational manager and this particular tutor who should have been informed about the extent of the role and responsibilities of the LSAs' working in his class. But beyond this, it shows a lack of a fair dissemination of tasks or a job strategy. Critically, what this narrative suggests is a significant health and safety risk to both the student and the LSA (and potentially others) due to a lack of college policy (guidance/strategy) on communication between the operational manager, the painting and decorating tutor and the LSA. Bronfenbrenner's eco-systemic theory (2005), suggests how occurrence in one system can influence an outcome in another. This forms the underpinning philosophical argument on which our research was based and which is very well demonstrated by the dilemmas encountered in both the above narratives.

These extracts from data reveal an insight into failings of the organisational management of participant LSAs' at the college. They indicate a lack of college policy which results in the mismanagement of support staff. Managers rely on the goodwill of support staff who feel obliged to help, (Fox, 2000, p. 26) refers to LSAs' working with SEN in schools as 'saints or superwoman – or both!' and who they know would not refuse to cover when their lecturers or tutors are absent. These extracts also raise concerns about the imbalance of power and top-down approach to management in the college. Reading Tomlinson's (2010, p. 542) tribute to Barton, where she refers to 'the common-sense view by those in control of education systems [...] to maintain the current aims of the organisation', sharpens my understanding of the reasons why management in the college where our research was conducted did not seem to acknowledge the importance of a meaningful education of those with disabilities. Theorising this matter indicates that other priorities must have taken preference over the quality of provision and service offered to post-sixteen learners with disabilities otherwise more attention would have been given to how LSAs' perform when supporting disabilities. Clearer monitoring and internal quality assurance is needed about what LSAs' are expected to do when they work with learners with disabilities (Fox, 2000; Pring et al., 2009).

A college strategy for how jobs and tasks are assigned to individual workers, including LSAs' who support learners with LDD, should not only indicate a code of conduct as to how decisions in

classrooms should be taken but also how instructing LSAs' about their responsibilities should be carried out. It should specify what tasks LSAs' should contractually be responsible for and in doing so safeguard LSAs' from tutors who unexpectedly impose extra work on them. Giangreco and Doyle (2007, p. 436) state that institutions must, 'establish logic and equitable decision-making practices for the assignment and utilization of assistants'. Unit 02 of the ELSAP intervention provides clear information and guidance on lines of communication as well as the code of conduct between managers, tutors, lecturers and LSAs'. It aims to provide participant LSAs' with much needed information on how decisions about their work are formulated and who is responsible for communicating this to them.

Research Conclusions

From analysis, and based on national and international equality and non-discrimination legislation, it is evident that at the time of this study at a specific college, policies did not exist that outline the important steps that need to be taken to provide the rightful inclusive provision for young people with disabilities. More specifically college policies must inform the organisation's implementation of operational inclusive strategies and in this case, strategies for the appointment and processes involved to ensure that the most appropriate LSAs' are being appointed to support learners with disabilities. Further to this, policies must stipulate strategies to ensure inductions and the on-going professional learning and development of LSAs', how LSAs' work load is to be administered to ensure contractual applicability to the LSAs' and in turn, just education for the learners who are disabled. Evidence has shown that this lack of college policies puts an ethical or meaningful education for post-sixteen learners with LDD at risk, and also fails to provide information and guidance to safeguard LSAs' in respect of their role and tasks.

From the literature we have seen that for college LSAs' to be effective in their roles (Armitage et al., 2006; Norwich, 2008; Pring et al., 2009; Reece & Walker, 2005), policy development must be in place (Barton, 2010; Norwich, 2008;) on a macro level to provide a legislative framework that guides, supports and safeguards members of staff who operate on a micro level (Bronfenbrenner, 1995; Von Bertalanffy, 1968). In this research we have seen that certain college policies were not in place. The reasons for this are unknown but exploring this is not the purpose for this paper. However, due to the reciprocal nature and complexities of a college environment, we can conclude that a lack of college policy resulted in a lack of support and professional development for the LSAs' who enrolled to participate on ELSAP. Although we can claim that these dilemmas impacted on LSAs' classroom practice, we cannot, however, make overarching claims that LSAs practice disadvantaged the post-sixteen learners with LDD (Hoban, 2002).

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

Discourse continues to stimulate policy developments, and we hope that the findings from this research will also achieve this. There is a definite need for a clear and specific set of requirements for what is expected of LSAs' personally, professionally and academically if they are to work most effectively in colleges supporting disability. We need to determine who they need to be, what they are supposed to do and how their development will be supported by the institutions in which they work. Florian (2007) agrees the much needed depth for appropriate educational research on learning support within 'inclusive' education. Existing literature on learning support and 'inclusive' education remains patchy and random and does not address key aspects such as selection requirements, strategies for work, need for qualifications and a call for mandatory training of LSAs' who work in colleges. On-going research is needed to further explore the effect the lack of these key

aspects is having on the classroom practice of LSAs and the quality of the institutional service young people with disabilities experience (Florian, 2007; Miller, 2003).

We would like to recommend that this study be used as a baseline for further research in the field of professional learning and development for college LSAs'. This research has identified barriers to further educational provision that currently exist. This indicates that we are not providing the meaningful education for young people with disabilities in the way that we ought to be or recognising the wise and important words of Gravell and Simpson (2008, p. 31), 'People with disabilities and learning difficulties play an important role in all aspects of life'.

This research brings to the forefront a new dimension in the need for learners with disabilities in colleges to be supported and cared for by trained professionals. It emphasises the need to develop relevant training towards a proper qualification framework for LSAs' and we believe ELSAP is a first step in that direction. This study paves the way for future researchers to either develop new and relevant professional learning programmes or to make amendments to ELSAP to meet the changing needs of participants and stakeholders. We believe that further research in the field of disability education will both inspire and empower educators to promote and provide an excellent service and in doing so, provide better social justice to learners with disabilities.

CONCLUSION

Having untrained LSAs' to support learners with LDD in the college where one of the researchers worked is a public issue (Wright Mills, 1959) which raises doubts about how meaningful the education being given to these individuals is. The existence of this social issue conflicts with what past and current educational policy development set out to do, which is to provide 'inclusiveness' and non-discriminative practice. Unless a training framework for LSAs' becomes mandatory the doubts and concerns of learners with LDD and their families on the meaningfulness of their post-sixteen education will continue to exist (Rogers, 2007). Should we perhaps be questioning whether the present lack of a national policy framework for the training of college Should LSAs' or an effective institutional policy is supporting exclusion of a different kind (Rogers, under review; Rogers, forthcoming)?

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EFL Teachers' Views Towards Language Learning Strategies: An Intercultural Perspective

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ABSTRACT

The paradigm shift from the instructionist perspective to the constructivist one has brought great attention to the active role of learners in the learning process. In second language learning, learners use a range of language learning strategies. Foreign or second language (L2) learning strategies are specific actions, behaviors, steps, or techniques students use, often consciously, to improve their progress in apprehending, internalizing, and using the L2 (Oxford, 1990). There are various factors, which affect the choice and implementation of learning strategies such as cognitive, social and affective factors. It is important for teachers to be aware of these factors to facilitate second language learning. This paper reports the intercultural perspective of EFL teachers on language learning strategies regarding significance of strategy, strategy instruction, self-development in teaching learning strategies and factors affecting the language learning strategies choice. Implications for language teacher education are discussed.

Keywords: Learning strategies, language learning strategies, teachers' views, intercultural views.

INTRODUCTION

Learning strategies and the factors that influence their use have received much attention in recent years since it became widely accepted that learning is a process and the role of the teacher is to facilitate that process. In the area of language learning, there has been much awareness and interest in resources for language learning strategies in foreign and second language teaching and learning. Researchers (Cohen, 1987; O'Malley & Chamot, 1990; Oxford, 1990; Stern, 1992) have stressed that successful language learners use a variety of strategies and techniques in order to solve problems that they face while learning a language. These strategies are teachable skills in the sense that teachers can assist in the language learning process by making students aware of strategies and encouraging their use. Students who are less successful language learners can learn these skills (Griffiths & Parr, 2001). This study attempts to investigate the views of EFL teachers towards language learning strategies regarding significance of strategy and strategy instruction. It also focuses on their views towards self-development in teaching learning strategies and factors affecting the language learning strategies choice.

LITERATURE REVIEW

Language Learning Strategy

In language education, the term 'language learning strategy' has been widely discussed by many researchers. Rubin (1975) originally defines strategies as techniques or device which a learner may use to acquire knowledge. For O'Malley and Chamot (1990), language learning strategies are special ways of processing information that enhance comprehension, learning, or retention of the information. According to Oxford (1990), language learning strategies refer to the specific actions, behaviors, steps or techniques that students use to improve their progress in apprehending, internalizing and using the second language. In addition to the various ways of defining strategies, there are also different ways of categorizing them. O' Malley et al (1985) categorizes strategies into metacognitive, cognitive and socioaffective. Their research finding indicates that metacognitive was the most importance. Oxford (1990b) classifies the strategies into two classes, direct and indirect according to the way different strategies affect a learner's second language learning. These two classes are subdivided into a six groups. She groups memory, cognitive and compensation strategies as a direct class and metacognitive, affective and social strategies as the indirect class. Many different strategies can be used by language learners: metacognitive techniques for organizing, focusing, and evaluating one's own learning; affective strategies for handling emotions or attitudes; social strategies for cooperating with others in the learning process; cognitive strategies for linking new information with existing schemata and for analyzing and classifying it; memory strategies for entering new information into memory storage and for retrieving it when needed; and compensation strategies to overcome gaps in one's current language knowledge (Oxford, 1990a).

Together with teaching methods, language learning strategies have a great effect on the learning process. Learning strategies have attracted the attention of many researchers such as Nunan (1991), O'Malley and Chamot (1990) and Oxford (1990). Most generally agree that language learning strategies are specific actions, behaviours, or techniques that learners use to improve their second or foreign language performance. Research into the good language learning strategies also reveals a number of positive strategies so that such strategies can also be used by less effective language learners trying to become more effective in language learning (Hismanoglu, 2000). Linguists such as Oxford (1990), Wenden (1987), and Cohen (1998) have suggested that learners might be able to learn target language effectively by the use of language learning strategies.

Researchers are also exploring various factors that affect the use of strategy by learners. In her review of a number of studies on learner strategies studies, Oxford (1989) lists the following factors: language being learned, duration, degree of awareness, age, gender; affective variables such as attitudes, motivation, language learning goals, learning style, cultural background, language teaching methods, and type of task. As for age and language stage, students of different ages and stages of language learning used different strategies. For example older or more advanced students employed more certain strategies. Females used a wide range of strategies than males. Learning style often determined the choice of language learning strategies. Analytic-style learners prefer strategies such as contrastive analysis, dividing words and phrases while overall learner use strategies to find meaning (guessing, scanning, predicting) and to communicate without understanding all the words. Regarding cultural background, it was found that rote memorization and other forms of memorization were used more often among some Asian students than among students from other cultural backgrounds. Finally, the types of task affected the choice of strategies employed to perform the task.

Language Teachers' Role in Learning Strategy Instruction

In describing how to facilitate second language acquisition, the goal of teaching learning strategies is to facilitate learners to become independent learners with the dexterity and wisdom to use strategies appropriately in a variety of contexts (Anstrom, 1998). Teachers still play an important role in guiding students to self-directed learning and to evaluate their own processes even though strategy training aims to encourage students take control of their own learning. A teacher's first act should be to identify the students' learning strategies so that instruction can be adapted accordingly (Hosenfield, 1977). Moreover, a teacher should conduct training on learning strategies and help learners become more independent (Oxford, 1990). Teachers need to direct learners on when and how to use strategies from the beginning. When learners become independent and can use strategies appropriately, teachers still need to evaluate their strategy use and provide additional support. In other words, teachers play a central role in language learning strategy instruction.

METHODOLOGY OF THE STUDY

A small study was conducted to investigate EFL teachers' views on language learning strategies. It also attempted to determine whether teachers of different age, gender, degree, years of teaching experience and current level of teaching differed significantly in how they viewed language learning strategies.

Participants

Two groups of teachers were invited to participate in the study. The first group included a random selection of teachers in different education institutes in Thailand. They were asked to complete the questionnaire, 23 of these teachers returned a completed questionnaire. There were 15 Thais and 8 native English speakers who taught English in Thailand. A second group, 8 Chinese teachers of English was invited to participate in the study. They were from different universities in China. Thus, the participants of this study were 31 teachers of English.

Research Instruments and Data Analysis

The instruments used for this study were a questionnaire survey of teachers' views on language learning strategies based on the five-point Likert scale ranging and an individual interview with open-ended questions based on some questions from the questionnaire. The data collected from the questionnaire were analyzed using SPSS. Descriptive statistics, including frequencies, means, standard deviations and percentages, were reported in order to investigate the views of teachers towards language learning strategies. Through this stage, the ranges of opinions gained by EFL teachers were assigned into 5 levels as follows:

4.5 - 5.0	strongly agree
3.5 - 4.4	agree
2.5 - 3.4	not sure
1.5 - 2.4	disagree
1.0 - 1.4	strongly disagree

T-tests and One-way ANOVA were used to determine the differences among native English teachers or non-native English teachers on language learning strategies. The Scheffe post-hoc test was used to determine any significant differences. $p < 0.05$ was set as the significance level for the mean variation, the standard used in most quantitative research. Interview data were collected in order to

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find more in-depth information about teachers' views and attitudes towards language learning strategies. Four teachers were participated in an interview.

RESULTS AND DISCUSSION

Table 1. *Background information of participants (N=31)*

Background Information	Independent variables	Frequency	Percentage
1. Home Country	Australia	2	6.5
	China	8	25.8
	England	1	3.2
	Ireland	1	3.2
	Thailand	15	48.4
	USA	4	12.9
2. Age	Under 30 years	9	29.0
	Between 31-40 years	12	38.7
	Over 40 years	10	32.3
3. Gender	Male	11	35.5
	Female	20	64.5
4. Language	Native English Speaker	7	22.6
	Non-native English Speaker	24	64.5

A summary of the demographics of the 31 participants is shown in table 1. All of the 31 respondents were teachers of English. There were 15 Thais and 8 native English speakers teach English in Thailand. The native English speakers were from Australia, England, Ireland and USA. The 8 Chinese were teachers of English in China. Nine teachers were aged under 30 years of age, twelve teachers were aged between 31 and 40 years of age, and ten teachers were over 40 years old. There were 11 males and 20 females.

Table 2. *Descriptive Statistics of Teachers' Perspectives on Language Learning Strategies (N= 31)*

No.	Perspectives on Language Learning Strategies	Mean	SD
Awareness of Language Learning Strategies			
8	Teachers need to know the benefits of language learning strategies	4.68	.47
9	Teachers can help students identify strategies in their learning	4.45	.51
10	Teachers should encourage students to use learning strategies	4.61	.50
11	Teachers need to know that there are various factors effecting learners' strategies choice (e.g. motivation or teaching methods)	4.52	.51
Significance of Language Learning Strategies			
12	Language learning strategies are a learning tool for students	4.45	.51
13	Language learning strategies improve language performance	4.39	.62
14	Many different strategies can be used by language learners	4.39	.76
15	Most successful students tend to use learning strategies that appropriate to the task and their own goals, needs, and stage of learning	4.40	.62
Significance of Language Learning Strategies Teaching			
16	Students can be taught to use effective strategies	4.39	.59
17	Language learning strategies teaching helps students become more effective language learners	4.35	.61
18	Language learning strategies teaching makes students more	4.29	.64

	independent learners		
19	Language learning strategies teaching can increase students' confidence in their own learning ability	4.19	.65
Perception of self-development in teaching Language Learning Strategies Teaching			
20	Teachers should share their knowledge with other educators on language learning strategies	4.35	.55
21	Teachers should seek opportunities to promote their understanding on language learning strategies	4.32	.75
22	Teachers need to become aware of learning strategies through appropriate teacher training	4.32	.60
Factors Affecting Language Learning Strategies Learners' use of language strategies depend on;			
23	Age	3.61	.92
24	Gender	2.90	.87
25	Language Ability	4.16	.90
26	Cultural Background	3.77	.84
27	Learning Style	4.39	.68
28	Motivation	4.52	.51
29	Teaching Methods	4.42	.62
30	Type of Task	4.10	.70

The results about individual perspective on language learning strategies is shown in Table 2. The results reveal that the highest average of 4.68 on teachers need to know the benefits of language learning strategies and the lowest average of 2.90 on learners' use of language strategies depend on gender. These indicated that teachers were aware of the benefits of language learning strategies whereas gender was the least factor that they thought might affect learners' use of strategies.

The results showed that teachers strongly agreed that they need to know the benefit of LLS, and they should encourage students to use learning strategies. This study reported the same results as in the research reports of National Capital Language Centre of Georgetown University that studied with Japanese, French and Spanish immersion teachers. In both studies, teachers believed that learning strategies made them more effective as strategies instruction improves students' language learning.

Moreover, the results of this study revealed that teachers should be aware of the various factors influencing learners' choice of strategies and motivation was the most important factor. Thus the understanding that the reason for studying a language affects the choice of strategies is essential to good LLS teaching. The overall results were indicative of the fact that the participants of this study tended to agree with the importance of LLS for learning and teaching, and they were also interested in LLS teacher training.

Teachers tended to agree with the idea that age, language ability and cultural backgrounds affect the LLS learners' choice. Interestingly, teachers felt unsure that gender was a factor which affects learners' choice of strategies even though numerous researchers stressed that gender plays a role in influencing the kind of strategy used as in Goh and Foong (1997), Kaylani (1996), Lee (2003), Chang et al (2007) and Anugakul (2011)'s works assert that female students use strategies significantly more often than their males counterparts. Thus, teachers should be aware of the potential gender effect in EFL learners' use of language learning strategies through appropriate teaching training in order to help their students learn more effectively.

On the basis of first language, the participants were grouped into native English teachers and non-native English teachers to determine any significant difference in the views towards language learning strategies between these two groups. The overall findings showed that their views towards language learning strategies were the same (i.e. agree to strongly agree responses) (see Appendix A). However there is a significant difference. Non-native English teachers tended to 'strongly agree' that teachers need to know that there are various factors effecting learners' choice (e.g. motivation or teaching methods), and that learners' use of language learning strategies depends on motivation and teaching methods while native English speaker teachers tended to only 'agree' to these statements.

An interview with 4 teachers was conducted to seek more information about their views on learning strategies. The interview data revealed that learning strategies are very crucial for students to learn new language. There are various factors, which affect the choice and implementation of learning strategies such as cognitive, social and affective factors. Cognitive factors in language proficiency are often related to strategy use. Social factors influence learners working with others and understanding the target culture as well as the language. Affective factors such as motivation, attitudes and beliefs are reported to have a profound effect on the strategies learners choose; for instance more motivated learners tended to use more strategies than less motivated learners. (see Chamot & Barnhardt, 1999; El-Dib, 2004; Goh & Foong, 1997; Green & Oxford, 1995; Oxford & Burry-Stock, 1995) Learners with negative attitudes and beliefs often show a lack of orchestration of strategies. In terms of self-development in teaching language learning strategies, schools and universities should provide opportunities for teachers to attend practical training on language learning strategies instruction. Before teaching students how to use strategies effectively, teachers need to be trained in strategy instruction and assessment.

CONCLUSION

Studies on learning strategies indicate that a teacher's orientation and expertise in language learning strategies play a critical role in successful learner strategy instruction (Thompson & Rubin, 1996). The findings from this study revealed that language teachers are aware of language learning strategies. They also realize that language learning strategies facilitate the learning of the target language. Language teachers should understand both language learning strategies and factors affecting students' choice of which language learning strategies they might employ. Since the factors like motivation, learning style, cultural background, etc. affect the way in which language learners learn the target language, they should be addressed in teacher education.

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APPENDIX A**Independent Sample T-test on views towards language learning strategies by Language (native English speaker teachers/ non-native English speaker teachers)**

No.	Perspective on Language learning Strategies	Native		Non-native		t	Sig.
		Mean	SD	Mean	SD		
8	Teachers need to know the benefits of language learning strategies	4.43	.53	4.75	.44	-1.61	.11
9	Teachers can help students identify strategies in their learning	4.43	.53	4.46	.51	-.13	.89
10	Teachers should encourage students to use learning strategies	4.57	.53	4.63	.49	-.25	.80
11	Teachers need to know that there are various factors effecting learners' strategies choice(e.g. motivation or teaching methods)	4.14	.38	4.63	.49	-2.38	.02*
12	Language learning strategies are a learning tool for students	4.43	.53	4.46	.51	-.13	.89
13	Language learning strategies improve language performance	4.29	.49	4.42	.65	-.49	.63
14	Many different strategies can be used by language learners	4.43	.53	4.38	.82	.16	.87
15	Most successful students tend to use learning strategies that appropriate to the task and their own goals, needs, and stage of learning	4.50	.55	4.37	.65	.43	.67
16	Students can be taught to use effective strategies	4.29	.49	4.42	.58	-.54	.59
17	Language learning strategies teaching helps students become more effective language learners	4.14	.38	4.42	.65	-1.05	.30
18	Language learning strategies teaching makes students more independent learners	4.43	.53	4.25	.68	.64	.53
19	Language learning strategies teaching can increase students' confidence in their own learning ability	4.29	.49	4.17	.70	.42	.68
20	Teachers should share their knowledge with other educators on language learning strategies	4.14	.38	4.42	.58	-1.16	.25
21	Teachers should seek opportunities to promote their understanding on language learning strategies	4.00	.58	4.42	.75	-1.31	.20
22	Teachers need to become aware of learning strategies through appropriate teacher training	4.29	.48	4.33	.64	-1.82	.86
23	Age	3.14	.69	3.75	.94	-1.57	.13
24	Gender	2.71	.49	2.96	.95	-.65	.52
25	Language Ability	4.29	.76	4.12	.95	.41	.68
26	Cultural Background	3.86	.90	3.75	.84	.29	.77
27	Learning Style	4.43	.53	4.37	.71	.18	.85

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28	Motivation	4.14	.38	4.63	.49	-2.37	.02*
29	Teaching Methods	4.00	.58	4.54	.59	-2.15	.04*
30	Type of Task	4.29	.49	4.04	.75	.81	.43

Challenges to Establishing School–Scientist Partnerships in the 21st Century: Case studies from New Zealand

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ABSTRACT

As Following U.S government initiatives in the mid 1980s to encourage business engagement with schools as a means of promoting improvements in curriculum and teaching, various programmes worldwide have attempted to develop models where science organisations and scientists have partnered with schools in project-based learning experiences. These have become known as school-scientist partnerships or SSPs. Literature suggests that successful SSPs are collaborative in nature, share common goals and responsibilities, position partners as equals in projects of common interest, and engage in science inquires of authenticity and mutual relevance (eg., Caton, Brewer & Brown, 2000; Pelaez & Gonzalez, 2002; Tinker, 1997).

This paper presents and discusses findings from two school-scientist partnerships between a New Zealand science research institute and two primary (Year 1-6) schools. Unlike other studies on SSPs it is not outcome-focused, but rather evaluates the processes involved in establishing the partnerships, using Grobe, Curnan and Melchior's (1993) typology of business-education partnerships as an analytical lens. Results indicate that forming successful partnerships aligned with the above principles in today's challenging economic climate is highly problematic, and that revision of the concept of partnerships and how they are established is needed, if they are to continue to be a viable means of enhancing science teaching and learning in the 21st Century. This paper uses findings from these partnership studies to suggest areas where such a revision is needed, and identify where attention needs to be paid to ensure partnerships are successful.

Keywords: Science, scientists, partnership, inquiry, collaboration, curriculum, teaching, learning.

INTRODUCTION

This paper describes and analyses two school-scientist partnerships undertaken between a New Zealand science research institute (Scion) and two provincial primary schools. It specifically examines their establishment processes using Grobe, Curnan and Melchior's (1993) typology of business-education partnerships, and explores factors that affected their overall development and performance. It offers insights into where attention should be paid to ensure partnerships are

successful, and suggests possible revisions for Grobe et al.'s framework to reflect the changed economic and educational environment of the 21st Century, within which partnerships are established.

The following research questions guided this study.

1. How did the partnerships between the schools and Scion develop, and what effect did this have on partnership performance?
2. Where did the partnerships exist on Grobe et al.'s (1990) typology?
3. What outcomes contribute to knowledge about effective school-scientist partnerships?

BACKGROUND

In recent years, there has been increasing concern internationally about the state of science learning in schools, and the impact this has had on student attitudes towards, and engagement in science activities later in life, and perhaps more importantly, the general level of science literacy in populations. Eric Albone of the Clifton Scientific Trust, in a 2003 presentation to the Parliamentary and Scientific Committee in the UK, wrote that:

... many students lose any feeling of enthusiasm they once had for science. All too often they study science because they have to, but neither enjoy nor engage with the subject. And they develop a negative image of science that may last for life (Albone, 2003, p. 1).

One response to these concerns has been the establishment of school-scientist partnerships or SSPs, which seek to link scientists with teachers and students in joint scientific inquiries, aimed at helping students "gain a unique understanding of both the content and process of science, and support a wide range of scientific studies by providing the capacity for world-wide observations, monitoring and analysis, by enthusiastic amateur student-scientists and their teachers" (Tinker, 1997, p. 111). While SSPs take a number of forms, they are generally characterised by practicing scientists working with teachers and students in 'hands on', often community-based projects, which allow students to assume the role of emerging scientists, while requiring scientists to act in a mentoring or educative capacity. Some successful examples include Project GREEN¹ (Global Rivers Environmental Education Network) in the Great Lakes area of the United States, and the worldwide Global Forest Watch² partnership.

Research undertaken as part of the Global Forest Watch partnership in Canada (Spencer, Huczek & Muir, 1998) and during Project GREEN (Donahue, Lewis, Price & Schmidt, 1998) identified a number of attributes that contributed to partnership success. These included the extent to which partners collaboratively engaged in the design and development phases, the ease with which the partnerships' goals and operation integrated with school curriculum, the use of inquiry science approaches, and how partnerships "let students be scientists and allowed scientists to be educators" (Donahue et al., 1998, p. 16). In both these partnerships, the key to success was in how well they engaged partners in a way that clearly valued the contributions each could make to the common goal, and established what Tinker (1997) described as a state of "mutual dependency of scientists and students both engaged in the same studies" (p. 112). Tinker commented that where such a state could be achieved, there existed the potential for establishing enduring partnerships, which "represent two-way streets of mutual interdependence and self-interest" (p. 111). Pelaez and

¹ Please refer to <http://www.earthforce.org/GREEN>

² Please refer to <http://www.globalforestwatch.org/english/about/staff.htm>

Gonzalez (2002) add that partnership performance is strongly influenced by the scope and duration of the engagement. They comment that while limited partnerships can be of short-term local value, their impact can be restricted by their failure to address more fundamental and systemic concerns relating to science learning, often involving many schools and educational authorities.

Principles and progression of school-scientist partnerships

School-scientist partnerships can take many forms (Howitt & Rennie, 2009). However, literature indicates that those partnerships that have been successful have been based on relatively consistent principles. In a study of two SSPs utilising what they termed a *Scaffolded Knowledge Integration Framework* (SKI), Linn, Shear, Bell and Slotta (1999) identified a “shared vision for success” (p. 62) as being a critical aim for partnerships – this being achieved through principles of collaboration, negotiation, mutual respect and honesty, curriculum alignment, and learning as a reflective, lifelong experience. Caton, Brewer and Brown (2000); Kirschner, Dickinson and Blosser (1996), and Howitt and Rennie (2009) adopt a similar stance, with Caton et al. (2000) adding the importance of partnerships being based on authentic science, and utilising student-centred approaches such as inquiry learning³, which “have been shown to be highly effective in improving content learning, science process and creativity, logic, language skills, and attitudes towards science and science learning” (Caton et al., 2000, p. 7).

Establishing and progressing school-scientist partnerships

While many studies exist describing partnerships and the outcomes of these for students, teachers and scientists, far fewer have explored how partnerships are established and how they evolve and develop over time. One of the few useful frameworks in this respect was developed in the early 1990s by Terry Grobe of Brandeis University. In response to U.S government calls to identify how business-education partnerships develop and can be sustained, and following on from early partnership forays in the mid-1980s, she developed what she termed a business-education partnership Typological Framework.

Grobe’s (1990) work reviewed a number of initiatives within the Boston Compact and other successful business-education partnerships, and identified the stages through which they developed, and the factors that contributed to their successful evolution. Grobe’s framework classifies partnerships using three principal criteria: the extent of involvement of each party, the partnership structure, and the level of impact of the partnership on the education system.

Within the involvement criteria, Grobe (1990) states that partnerships progress through three stages; support, cooperation and genuine collaboration, with the relationship developing into a mutually satisfying liaison over time.

The second criterion explores how the partnership is structured and managed. Grobe identifies partnership structure as being either simple, moderately complex, or complex in nature. In a simple partnership, responsibility for management resides with one of the partners, with the other usually being concerned with the provision of services or resources (generally the business). In moderately complex partnerships, “management or decision-making is shared among two or more partners, each with substantive program responsibility” (Grobe, 1990, p. 10). Complex partnerships develop into their own entity, often leading to the establishment of separate management and

³ Ronald Anderson provides an excellent discussion on inquiry science in the *Journal of Science Teacher Education*, 13(1), 1-12. DOI: 10.1023/A:1015171124982

organisational structures. They may also exist at multiple levels within partnering organisations, with specific initiatives or projects being targeted at particular needs or opportunities.

The third criterion - the level of impact of the partnership, can be assessed by observing the effect the partnership has on the education system. Grobe et al. (1993) comment that generally those partnerships that have the greatest involvement and investment, and target systemic policy-level change, are more likely to bring about lasting and wide-ranging improvements and reforms; while those focused at a classroom or school level, are much more limited in their potential impact. In relation to this, they state, "that partnership, like change, is a process, and not an event" (p. 5), and like any relationship, they should evolve over time. Successful partnerships adapt goals, responsibilities and processes to meet changing circumstances rather than remaining static entities, thereby running the risk of losing their relevance in the face of changing conditions.

The following study applied the tenets of Grobe's (1990) framework to evaluate how the establishment and development phases of two SSPs affected their overall value and performance. Although Grobe's framework was not specifically developed from science partnerships its use was considered appropriate in this instance, as the research institute involved, although being state-owned, was an independent trading company, effectively functioning in the same way as a private business. It also appeared to be one of the few researched frameworks developed that explored education-private sector interaction. This study is significant in that unlike other studies, its immediate focus was not on evaluating partnership outcomes. Its primary purpose was to analyse approaches used, and isolate how they affected each partnership's performance. This information will contribute to the paucity of literature exploring these aspects of school-scientist partnerships.

The research context and partnerships

This study was conducted with two schools in the north island of New Zealand, which were involved in a government-funded partnership with the biomaterials research institute, Scion Research Ltd. Scion is a state-owned enterprise, and is one of eight science research institutes responsible for government and private sector scientific and technological research and development in New Zealand.

The schools were selected following an invitation posted in the New Zealand Education Gazette (a magazine-type publication distributed free of charge to all schools). The first school was a small 128 student semi-rural primary (Newfield), and the second was a larger 650 student urban primary (Stanmore). The partnerships took place over a 12-week period, during the second and third terms of the 2009 school year. The classes selected were (respectively) a year 5/6 composite class comprising 13 boys and 15 girls (9-11 year olds), and a year 6 class of 29 students, comprising 16 boys and 13 girls (10-11 year olds). The classes were taught by female teachers who both had over 15 years classroom experience, and the partnership topics focused on environmental sustainability themes. The Newfield partnership was based on the restoration of a neglected gully adjacent to the school, while the Stanmore partnership focused on the development of a care and maintenance plan for a stream that ran alongside the school, in an area of unused land owned by the school board (Figure 1). Both partnerships involved a small team of 2-3 scientists working on a regular basis in classrooms (up to 4 hours per week). This team included an entomologist, a soil specialist and a microbiologist, who undertook a range of activities from coordinating 'hands on' experiments, practical bush and gully field investigations, and whole class and group teaching sessions. Additional support was provided online through email, teleconferencing, and scientists' contributions to class wiki and blog pages.



Figure 1. Students observing and recording the water clarity of the stream

RESEARCH METHOD AND DATA COLLECTION

An interpretive case study approach was applied to this research. Consistent with qualitative studies of this nature, data were collected using multiple methods. These included document analysis (eg., official contracts and documents relating to partnership planning, teacher planning, teacher reflective logs); semi-structured interviews with teachers (Helen & Amanda – Appendix 1), school principals and senior management (Steve & Rob – Appendix 2), and scientists (Simon, Dave & Phil – Appendix 3) during and following the partnerships; observational field notes and photographs; and audio recordings made during planning meetings. A research assistant transcribed all interview data, with transcripts being returned to participants for verification. The study complied with Scion's ethical research guidelines, with informed consent being gained from all participants, and confidentiality being maintained through the use of pseudonyms and the changing or removal of other potential identifiers.

Data coding

Data were inductively coded by the researcher and a research assistant (a postgraduate education student), using Braun and Clarke's (2006) Thematic Analysis framework. Following an initial independent review identifying commonly occurring themes, the researcher and assistant met, and each analysis was compared and debated. Similarities existed across four broad themes. These were:

- The effect of partnership negotiation processes;
- The compatibility of partnerships with curriculum learning models and themes;
- Review and evaluation procedures;
- Partnership sustainability.

SPSS was used to perform an inter-rater reliability check (Kappa) for all data subsequently coded within each theme. This yielded an average reliability measure of just under .73 ($p < 0.05$) across the four themes, indicating substantial agreement (Landis & Koch, 1977). Sample data coded by theme are recorded in Table 1.

FINDINGS**The effect of partnership negotiation processes: Planning, goal setting and leadership**

In this theme, data indicated partnership performance was contingent upon the 'alignment of expectation' that was achieved between partners, and the degree to which what was agreed to, was carried out. The foundation to this was quality communication and partner commitment, and how this played out in the reliability of partnership implementation. In the Newfield case this generally appeared adequate, however for Stanmore, the situation was somewhat different. Early reliability issues impacted negatively upon this partnership, causing commencement delays that resulted in compression of the partnership against end of term assessments and other school events:

... the first time I met with Simon (the scientist coordinator) we had a talk and went down to the bush and had a look – and we made a date (when he would come back and start work with the class) but he forgot... or something happened and he didn't come, so we had to wait a couple more weeks until he could make it. It was disappointing really, as we had to cut things short at the end because we had the gala and then camp (Amanda, interview, August 27, 2009).

Issues also arose through delays in delivery and the quality of technology supplied to the schools by Scion, to support the field investigations. In Newfield's partnership, digital microscopes, Netbook computers, infra-red night cameras, and environmental monitoring equipment were sent to the school but arrived in non-operational condition (Helen, reflective log, September 24, 2009).

Table 1. *Examples of Data by Coding Category*

Categorisation	Interviews	Meetings/correspondence	Documents/other
Partnership negotiation	<i>"We did have our outcome; what we wanted to get out of this, and keeping that in mind –but Simon also suggested some things which we hadn't thought of. In the beginning we didn't really know what was possible... we didn't have a clue what they (Scion) did, so we didn't know what to ask for" (Helen, interview, June 17, 2009)</i>	<i>"Helen to forward to Simon copies of the school's planning template to be put onto file share for both to work on over the next 2 weeks." (Meeting minutes, June 10, 2009)</i>	<i>Future Learning unit planning framework. Teaching topic plan on Waterway Ecosystem Health produced by Simon and Amanda. (Teacher planning documents, September 22, 2009)</i>
Partnership compatibility	<i>"The whole project has naturally integrated, their reading, science, social studies, and art; a lot of it's happened just naturally. It's been a good fit." (Helen, interview, September 22, 2009)</i>	<i>"It (the partnership) will slot in nicely. We are going to focus on higher level thinking skills next term so this is good timing..." (Amanda, email, August 17, 2009)</i>	<i>"...it has provided her (Helen) with lots of new opportunities... to be supported in an area she is keen on, but perhaps in the past has lacked confidence. And it has been good for the rest of the staff... we have had her lead sessions telling us what she is doing and how she is using the technology in science." (Steve, interview, September 17, 2009)</i>
Partnership review and evaluation	<i>"...it would have been a good idea to sit down and have a look and see what went well and not so well, so you can make changes... and not just at the end. We never really had a chance to do that... and given it's a new programme, I thought it would have been really important." (Helen, interview, September 22, 2009)</i>	<i>"...we really needed to revisit this because the groups were way too big, and management too hard... we didn't really have the chance to talk about it and work out the best way of doing it." (Amanda, interview, July 20, 2009)</i>	<i>The 'evaluation' section of the planning templates used by both teachers made no reference to any partnership evaluation. (Teacher planning documents, November 4, 2009)</i>
Partnership Sustainability	<i>"...I'd love it as an ongoing thing... you know as teachers we don't know everything – we can't, and science is an area many of us have trouble with as it is quite specialised. It would be good to know that we can call on them again sometime...." (Amanda, interview, August 27, 2009)</i>	<i>"...we would love to keep going - that's what it's all about after all. But we have funding from government till the end of next year and then that's it. It's up to them really. If they expect us (CRIs) to fund this internally, then I don't think it's possible..." (Simon, interview, October 8, 2009)</i>	<i>The terms of reference for the Science-for-Life partnership specify the requirement to cost all partnerships so a case can be made to government supporting a wider roll out of the initiative, if successful. (Science-for-Life Terms of Reference, 2009, p. 4)</i>

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In Stanmore's partnership, supplied technology was incompatible with school computer systems and needed adapters to function adequately. While appreciative of the additional technology, both teachers considered these issues detracted from partnership performance and increased fragmentation:

... it really lost a bit of its momentum (the partnership). There were big gaps between when we planned to start and when we actually got underway. And the computer stuff didn't work properly, so we had to sort that out first. Once we got going it was fine – in fact really good - but it seemed to take a long time to get there. I think for these things to work it needs careful planning... everyone's got to be prepared. I know things happen, but it's hard for schools to change at the last minute (Amanda, interview, August 27, 2009).

Data indicated some confusion existed about the nature of support available from the scientists, and how this was to be provided. While the purpose and aims of partnerships were apparent, teachers initially appeared uncertain about what the scientists could offer, or how this would fit into their science programmes. Amanda commented that stronger indication of possibilities from scientists would have saved a lot of time, and would have helped partnerships keep within manageable timeframes:

... I knew what it was about (the partnership)... what the big picture was, but I didn't really know what Scion had to offer. I had no idea what they did! I guess I was kind of open to see where it could lead. Maybe if I was more focused, and said '*this is what I need, what can you come up with?*' ... but I'm not good at science, so I didn't really know what I wanted... if you know what I mean... (Amanda, interview, August 27, 2009).

Amanda's lack of depth in science was a significant concern for her, and had affected her teaching of science in the past. She commented that once underway, the partnership gave her greater confidence and security, encouraging her to attempt student-led inquiries that had previously been avoided:

... my own knowledge isn't huge in any of this... you can go to the Internet, but there's so much information... it's hard to know what to take and what to leave. I just have to email and ask if they have any information about this or that... it's having the contacts. I just emailed today and asked Dave (a soil scientist) if he had any information on deforestation... something one of the kids was studying, and he sent me though a whole slideshow (Helen, interview, June 17, 2009).

The engagement of school leadership was a pivotal factor in the establishment phase, and the way this developed impacted significantly upon each partnership's performance. In the Newfield partnership the principal was fully engaged from the outset, attending initial planning meetings, and requiring Helen to lead school-wide professional development for other staff on the teaching model she was using for her unit. He also understood the commitment needed to the partnership, viewing it as a unique opportunity that Helen had benefited considerably from:

... it has provided her with lots of opportunities... to be supported in an area she is keen on, but perhaps in the past has lacked confidence. And it has been good for the rest of the staff... we have had her lead sessions telling us what she is doing and how she is using the technology in science. It has raised the profile of the school in the community – it's been a real bonus (Steve, interview, September 17, 2009).

Contrasting this, Stanmore's principal had no direct involvement, instead delegating responsibility to the Deputy Principal (Rob). While Rob attended the first planning meeting, it was clear his interest related not to the partnership itself, but to managerial concerns such as the level of commitment required by Amanda, and the impact this might have on her other school duties:

... I got the impression that Rob was worried about getting into something that we couldn't carry through... but that wasn't my understanding of it at all... my understanding was *let's get help in science* as it's an area I'm not great at... science is not a big area of mine (Amanda, interview, August 27, 2009).

Data indicated school leadership was uncertain about the commitment required to Amanda's partnership, which led to the adoption of a very cautious approach to its development. This slowed down planning and implementation, as any significant activities had to be approved by a member of the school's management team before they could be undertaken. While comments from Amanda indicated little foundation to concerns, the ambivalent attitude shown by school management limited her options, and prevented the partnership from gaining momentum:

I think he (Rob) was over-cautious. There were lots of other things I would've liked to have done, but I felt a bit hemmed in. Rob kept asking me how it was going... like he was waiting for it to finish or something. We had a lot of things on our plate at that time... trialling National Standards and stuff. Maybe he was worried about that (Amanda, interview, August 27, 2009).

The compatibility of partnerships with curriculum learning models and themes

Data from both studies illustrated the benefit of partnerships integrating with existing curriculum themes and learning models. Teachers viewed them as a 'natural fit' in both schools. While there were some initial logistical and coordination issues as described previously, teachers recognised the intent of the scientists to work in with their planning, by building partnerships around already scheduled topics. Although this meant that partnerships did not significantly disrupt other subjects, having to fit them around seven other curriculum areas also meant that opportunities for longer and deeper investigations were limited. As Amanda commented:

It was good overall... worthwhile. But because we had to work it in around everything else, we never really got to the depth we intended. We had hoped to get the kids to develop a maintenance plan for the stream and then for the scientists and kids to work together to put it into action, but it didn't happen. We didn't have the time. To do this sort of thing properly, I think you need to block out decent chunks of time. It's impossible to squeeze it in here and there... around everything else we have to do (Amanda, interview, August 27, 2009).

Despite these issues, teachers identified compatibility between school learning models and the approach taken by the scientists, as a major strength. Both teachers designed their curriculum around learner-centred inquiry models, which encouraged students to develop research skills to generate answers to their own questions, in much the same way that scientists do. Teachers considered the design of partnership activities enabled their students to practice skills developed in other subjects, within a science context:

... they allow my kids to do their own investigations... where they decide on their question and then research that... do the practical side of things; hypothesise and test, and come up with conclusions. I didn't need to learn a new way of doing things (Helen, interview, 17 June, 2009).

The partnerships also provided teachers with opportunities to integrate learning in a number of curriculum areas, and practise skills they had been developing through other professional initiatives such as the ICTPD programme⁴. As ICT played an important role in both partnerships, the opportunity to explore new technologies such as blogs and wikis, and use digital microscopes and infrared night vision cameras was viewed as a significant benefit (Figure 2).

⁴ ICTPD is a state-funded professional development programme for teachers focusing on improving teaching and learning through the smart use of technologies.

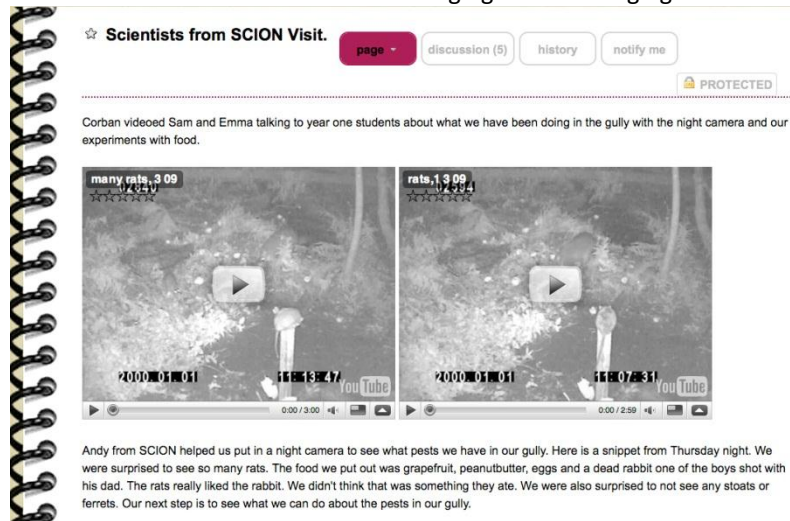


Figure 2. A student blog including images from the night vision camera

Teachers identified the knowledge and expertise of the scientists as assisting curriculum integration. By this they referred specifically to their science conceptual knowledge, and their knowledge of inquiry-based pedagogy. They viewed the presence of both these attributes as somewhat unique, in that often when 'experts' are used in the classroom, while they may have in-depth subject knowledge, they often lack the ability to relate this to children. As Amanda commented:

... sometimes you get people who know about things – are really knowledgeable - but they can't put this over to the kids... they lose them. But this has been really good – hearing from an expert, rather than me reading from a book. Phil talked to the kids about electronic testing... stunning the fish to measure them... and as they went on the better it got – they found their feet – they were shown the boundaries, and they were a neat bunch (Amanda, interview, August 27, 2009).

Data indicated the partnerships had a positive influence on students' perceptions of scientists and what they did. Teachers administered an informal survey based on the Draw a Scientist Test (Chambers, 1983) before and after the partnerships (Figure 3), with post-partnership results showing significant decreases in the presence of stereotypical scientist attributes such as lab coats, mad hair, and thick glasses.

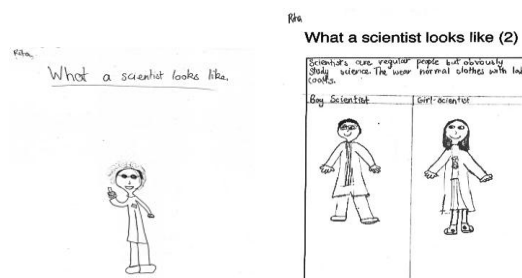


Figure 3. A student's before and after partnership DAST image

Teachers attributed this change to the way in which the scientists portrayed, represented and communicated their science. Helen commented:

... the survey showed me that the kids thought science was for weirdos... you know, fuzzy hair, bubbling test tubes, white coats... that sort of thing. But how they (scientists) came across was

really different. They knew how to teach science, which was great - they made it real and interesting for the kids – the kids were fully engaged, and I was amazed at their (the scientists) questioning skills. It was good to see change at the end of the programme (Helen, reflective log, August 21, 2009).

Review and evaluation procedures

Although viewing partnerships favourably, feedback from teachers and principals indicated some frustration with ineffective review and evaluation procedures. Apart from the collection of research data, there were no organised mechanisms available to teachers to communicate possible partnership changes or improvements back to the scientists, and no summative evaluation of the partnerships at their conclusion. Teachers saw this as missed opportunities to build stronger programmes longer-term, and to improve partnerships as they progressed. As Helen pointed out:

... it would have been a good idea to sit down and have a look and see what went well and not so well, so you can make changes... and not just at the end. We never really had a chance to do that... and given it's a new programme, I thought it would have been really important (Helen, interview, September 22, 2009).

One principal went even further by stating it was an accountability issue, and that greater scrutiny of the partnerships' performance should have been undertaken, as public money was involved. While not challenging the concept, Steve indicated:

I couldn't help thinking even from where I'm sitting, that there were things that could have been done differently – improved... made more effective. We really needed to sit down as a group around the table and do a debrief... as it's publicly-funded, I thought it was essential (Steve, interview, September 17, 2009).

Although lack of feedback and evaluation did not lead to failure, it also did not enable key knowledge to be built upon between partnerships, thereby contributing to on-going improvement.

Partnership sustainability

Data coded in this theme raised questions about the sustainability of partnerships, particularly in small countries such as New Zealand where companies have limited resources and where there are multiple demands placed on scientists' time. In commenting on this point, a principal and a scientist identified shortcomings in the model used, in that while the government-funded trial was useful as a 'proof of concept', it ignored longer-term considerations necessary to embed partnerships as routine components of company operation. Scientists saw partnerships as philanthropic activities, but at the same time questioned their viability if programmes were to continue or expand:

... it costs a lot to send someone through University... society has invested a lot of time and money in the likes of me. I guess this is a chance to give a bit of that back... and hopefully help teachers and students in the process - although I'm not sure how it works the other way 'round. It's supposed to be a partnership I know, but realistically there isn't a lot young kids can do to help us. And if the programme was to grow, then I'm not sure how that would work either. Someone has to pay for it. It's OK at the moment 'cause it's small scale... we can fit it in. But if it was 10 or even 5 schools, then it would be a different story... we couldn't get 3 scientists into every classroom like we did for this one (Dave, interview, September 30, 2009).

Steve echoed similar sentiments, and added that in his understanding where partnerships had been undertaken overseas, they had involved multinational companies or large government corporations, providing a significantly broader resource base than any in New Zealand might be able to provide:

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... it's a real plus making the contacts Helen can call on if she needs to at any time. But it must be expensive... shuffling scientists all 'round the countryside... dragging them away from their work. It's OK for this trial, but I don't know how a small outfit like Scion could pay for this if the government didn't... and schools aren't funded for it either. I would think continuing long term would be challenging... New Zealand companies simply don't have the resources (Steve, interview, September 17, 2009).

While both partners agreed on the merit of the concept, they had significant doubts over logistical aspects of managing any extension of partnerships to more schools. Scientists especially felt that tight management was essential, so that school activities – not perceived as part of their core business, did not impinge upon their contracted research work.

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

When evaluating these partnerships against Grobe's (1990) first criterion - level of involvement, it is apparent that they represented more a one-way provision of support, rather than any mutually beneficial relationship developed around negotiated goals and aspirations, identified by literature as being desirable (eg., Donahue et al., 1998; Spencer et al., 1998; Tinker, 1997). Although this approach did not significantly negate some benefit for schools, outcomes for scientists were minimal. Despite clear intent for partnerships to be mutually beneficial by students contributing to local environmental work scientists were involved in (as recorded in the programmes' Terms of Reference), a number of factors worked against this.

Firstly, lack of teacher confidence and depth in science positioned them as unequal in the partnerships, which particularly affected their level of input into the planning and implementation phases. This manifested itself as something of a void when it came to input into the science component of partnerships, resulting in responsibility for this being handed over almost completely to scientists. While it might be argued that this should be the scientists' role in partnerships, this study found low levels of teacher science confidence and literacy contributed to significant delays in partnership commencement, as teachers struggled to understand what the scientists could offer, and the underpinning science knowledge involved.

Secondly, while compatibility with teaching models used in the classrooms was helpful, the requirement for partnerships to be structured around 'higher priority' subjects such as numeracy and literacy, meant that opportunities for lengthier and deeper investigations were curtailed. The arrangement of schools' curriculum in timetabled blocks and the hierarchical nature of subjects, impacted upon continuity, making the establishment of partnerships of the depth necessary for useful contributions to scientists' work, very difficult. Thirdly, there existed doubts in scientists' minds about any useful contribution young students could make to their work, and their ability to sustain partnerships longer term, given the pressure of paid research work and other demands on their time. While for the purposes of this trial government funding made this possible, scientists viewed scenarios where partnerships were not externally supported as problematic, as they considered research institutes in New Zealand were insufficiently funded for such activities. Additionally, the fact that the model used required schools to contribute nothing financially and minimal 'in kind', encouraged the perception of schools as being the 'recipients of service', rather than being engaged in something approximating an equal relationship.

In considering Grobe's (1990) second criterion - partnership structure, these partnerships appeared very simple in nature, with management responsibility largely residing with scientists. While not demonstrating complexity according to Grobe's typology, the management structure appeared

suited to these partnerships as it assisted teachers by lessening administrative loads, allowing them to concentrate efforts on securing good educational outcomes. This approach was something of a doubled edged sword, in that while it detracted from a sense of partnerships being fully-negotiated, shared ventures, it also enhanced their level of 'teacher-friendliness' by removing additional administrative burdens from already busy teacher workloads.

What was of concern structurally, however, was the absence of effective feedback and evaluation mechanisms. Grobe et al. (1993) comment that an essential attribute of effective partnerships is their ability to adapt to feedback and/or changes in goals, operating parameters, or environment. This study indicates the critical importance of embedding organised feedback processes in partnerships, which allow data to be accessed and used formatively to make improvements and changes as partnerships develop. The systems should be in addition to summative evaluation measures, be integral to partnership design, and be part of planning processes from commencement. These negotiations should also involve school leadership, who must be clear on, and engaged with, the broader aims of partnerships, the potential benefits for staff and students, and the level of commitment required. Without committed school leadership support, partnerships may struggle to become established.

Structural considerations also extend to partnerships that are funded through external grants from government or other organisations, and are subject to contractual requirements. An issue this trial revealed with such an approach is the lack of flexibility contract-based models allow, when requirements and outputs are specified in advance and subsequently used as reporting and compliance measures. In these examples, this approach did not enable changes to be easily made as partnerships evolved, as any significant variation to the contract outputs needed to be renegotiated with the government agency responsible for the contract's funding. This process could be cumbersome and time consuming, with timelines extending beyond the period within which any useful changes could be advantageous. If contract-based models are to be used in partnerships, it is recommended that sufficient flexibility is built into terms and outputs to allow for responsive changes to be made without formal contract revision.

The final criterion in Grobe (1990) references is the level of impact the partnership has upon the education system. Although restricted in scope and limited in impact by the factors described previously, teachers reported these partnerships benefited their students' learning, and to a lesser extent, supported them professionally in an area they struggled with. Data suggests the partnerships helped change students' perceptions of scientists, enhanced student learning through access to 'hands on' science activities, improved teacher confidence to teach science, and provided contacts for teachers to assist with future science topics. In considering this criterion therefore, when appraising partnership worth, it is important to acknowledge that smaller partnerships such as these can and do have impact, albeit on a more localised scale. As in this case, small partnerships also hold potential to develop into or inform larger initiatives, by serving as a 'testing ground' for strategies and approaches.

General implications for partnership development

Findings from this study hold implications for others considering developing school-scientist partnerships. Firstly, they confirm the benefit of partnerships that integrate seamlessly into the curriculum designs of schools, and at least initially, are minimally disruptive to existing ways of working. They also highlight the vital role formative feedback mechanisms play in improving partnership performance, and that such measures need to be integrated fully into planning from the outset. While ultimately as Palaez and Gonzalez (2002) state there exists potential for partnerships

to be transformative in nature, due to the constraints and conventions under which schools operate, change of a transformative nature is seldom immediately possible, and innovations such as this take time and effort to gain credibility and traction. This study emphasised the importance of well-planned partnerships initially starting small, but at the same time adding obvious value in a non-threatening way.

Secondly, while literature indicates the desirability of partners being seen as equals, a relationship based on this principle may take time to develop, especially where teachers may be positioned initially as 'deficit' by low levels of science confidence. Scientists especially should be aware of this, and support teachers to develop their knowledge as much as possible, to a point where they feel more confident to teach science independently, rather than relying on scientists to fill basic knowledge gaps for them.

Thirdly, while fully-negotiated partnerships should be an ultimate goal (Grobe et al., 1993; Kirschner et al., 1996; Linn et al., 1999), at least in the initial stages, adopting a more structured and directed approach should be considered. Adopting this strategy was particularly effective in these partnerships. While not disputing the long term desirability of fully-negotiated partnerships, this study indicated that attempting this from the outset can lead to startup delays and an initial lack of direction, as each partner came to terms with the capabilities and expectations of the other. A flexible framework or template could be a useful means of providing an initial structure for partnerships, which could be developed and built on as they progressed into ones of a more negotiated nature.

Fourthly, while literature indicates partnerships should represent something of a merging of the worlds of scientists, teachers and students (e.g., Donahue et al., 1998; Spencer et al., 1998; Tinker, 1997), the reality of achieving this 'negotiated middle space' appears challenging. Findings suggest that scientists must be prepared to spend time learning about appropriate pedagogical strategies such as questioning, using student responses to guide lessons, student learning capabilities at different school levels, age-appropriate communication of science concepts and so on, in order for partnerships to be effective. Additionally, they should become familiar with science planning and assessment and how this relates to curriculum requirements, so that partnerships assist teachers to meet these obligations. As increasingly teachers are required to account for and assess programmes against specific curriculum objectives, it is important that partnerships are designed to be compatible with these. The message here is that it is scientists who need to come to terms with educational approaches, not teachers coming to terms with science approaches, which is likely to lead to partnership success.

Finally, this study holds implications for government agencies in their decision-making about funding partnerships. Overseas experience has indicated that while successful partnerships may have involved government agencies in their establishment phase (Howitt & Rennie, 2009), ultimately, their ongoing success was built on a self-sustaining model that involved no external funding. While these two examples were reasonably successful, the approach adopted by government represented a short-term view, rather than a longer-term commitment to, and understanding of, successful partnerships. Little stands to be gained from doing the hard work of establishing partnerships, only to walk away from them after initial interactions. Governments and organizations should heed this message, if enduring partnerships of significant value are to be established.

CONCLUSION

While some findings from this study resonate with previous studies - such as the importance of curriculum alignment, others challenge popularly held notions of fully-negotiated partnerships. They point to difficulties in establishing partnerships where issues such as low teacher capability, curriculum pressures, and school organizational systems constrain the ability to form partnerships of depth and duration. While teachers viewed the activities comprising these partnerships as worthwhile and helpful, the original intent of the programme of establishing lasting relationships was never fulfilled.

Grobe's typology (1990) was a useful framework for analyzing the structure of these partnerships, and it also provided some indication of where changes could improve their performance and the effectiveness of implementation processes. However, the framework was developed a number of years ago, using data from studies undertaken during an era where there was considerable political urgency, relative economic prosperity, and a longer-term vision for organizations to support schools to improve science education, as a means of enhancing economic performance. Present challenging economic conditions, and a tendency to focus on shorter-term economic, political and social objectives, might mean that the whole concept of long-term partnerships between science organizations and schools may need rethinking. Any revision might involve exploring how organizations and schools can partner in effective, manageable, shorter and more focused arrangements, perhaps targeted at specific, limited-scope projects. Whatever approach is adopted, it is likely that organizations will place greater emphasis on justification and viability, as fiscal considerations become increasingly prominent. While earlier studies indicate lasting partnerships are possible, further research is needed into new models for establishing partnerships that reflect this more challenging economic and business environment.

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Languages in Australia – Future and Survival in a Mono-lingual Context: A Survey of the Victorian School of Languages (VSL)

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ABSTRACT

As Australia is a country of significant migration and as such language diversity. Though it is an English language domain as a result of its British origins, due to the arrival of over 5 million migrants since 1947, the use of second languages and its learning has become a matter of policy as well as societal importance. Within Australia, Victoria is the State with the greatest presence of ethnic diversity and according to the latest census (2006) the State with the largest number of people born abroad and second language used at home. It is also the State with the most unique school for second language learning - the Victorian School of Languages (VSL).

The particularity of the VSL is in the role it plays in a supplementary support to the Education Department in delivery of Languages other than English (LOTE) and on a parallel basis delivers 46 languages to about 15,000 students on a Saturday morning, or through distance education. It in effect, provides supplementary language delivery to mainstream schools under the umbrella of the Department of Education where these schools do not have the LOTE provision. It has over 800 teachers of a multiplicity of languages distributed across 41 centres throughout the State of Victoria.

The nature of this paper is to explore the profile and views of this school through its human capital of teachers. As these teachers of language are the coal face of language delivery to thousands of students they have views of languages, which will be more advanced than mainstream opinion. In late 2011, an extensive survey was conducted of the VSL staff (again mostly teachers) with over 552 responses. The responses provide not only an overview of this most precious cohort but views on central issues such as multiculturalism, multilingualism, teaching languages and their place in Australian society. This is a unique study of a critical cohort offering not only opinions on controversial matters surrounding languages but recommendations for policy makers on delivery and improving the effectiveness of language delivery. The results are both predictable and yet diverse. The paper seeks to draw out some of these results and offer them to education policy makers and researchers of languages.

As languages are the vital key to manifest and reveal one's own culture and to understand the culture of others, its provision becomes of great importance in such a country like Australia which is home to many different ethnic communities, thus, home to many languages.

Therefore, it is important to examine the opinions of the staff in a school of multi languages about the degree to which Australia has been able to parallel its success in the field of languages with the development of cultural democracy/multicultural education programmes. This paper aims at exploring the views of the of the VSL community on issues related to languages so as to be able to draw a picture of the strengths and weaknesses they think that exist in Australian society and as such offer possible measures to improve the teaching of languages.

Keywords: Language diversity, second language, multilingualism, The Victorian School of Languages, monoculture.

INTRODUCTION

Australia, whose population is identified by more than 270 separate ancestries, has been home to many different ethnic communities especially since the end of the Second World War. Among those ancestries, Australian (37 per cent) and English (32 per cent) were the most commonly stated ones and other main ancestries stated were Irish (9 per cent), Scottish (8 per cent), Italian (4 per cent), German (4 per cent), and Chinese (3 per cent) in 2006 (See table 1). The changes observed in the ancestry are parallel to immigration trends over the period, although the reason for some discrepancies can also be the differences in Census question design (ABS, 2006).

Table 1. *Population, by self-reported ancestry (2001-2006)*

Ancestry	2001 '000	%	2006 '000	%
Australian	6 739.6	35.9	7 371.8	37.1
Other Australian ancestries(a)	106.4	0.6	129.9	0.7
New Zealander	123.3	0.7	160.7	0.8
Maori	73.0	0.4	92.9	0.5
Other Pacific Islander	91.7	0.5	117.7	0.6
European				
English	6 358.9	33.9	6 283.6	31.6
Irish	1 919.7	10.2	1 803.7	9.1
Scottish	540.0	2.9	1 501.2	7.6
Italian	800.3	4.3	852.4	4.3
German	742.2	4.0	811.5	4.1
Greek	375.7	2.0	365.2	1.8
Dutch	268.8	1.4	310.1	1.6
Maltese	136.8	0.7	153.8	0.8
Middle Eastern				
Lebanese	162.2	0.9	181.8	0.9
Turkish	54.6	0.3	59.4	0.3
Other Middle Eastern	147.0	0.8	189.7	1.0
Asian				
Chinese	556.6	3.0	669.9	3.4
Indian	156.6	0.8	234.7	1.2
Vietnamese	156.6	0.8	173.7	0.9
Filipino	129.8	0.7	160.4	0.8

Other Asian	339.5	1.8	455.3	2.3
Other ancestry(b)	243.9	1.3	386.4	1.9
Total population(c)	18 769.2	100.0	19 855.3	100.0

Source: ABS, 2006 Census of Population and Housing.

(a) Includes Aboriginal, Torres Strait Islander and Australian of South Sea Islander descent;

(b) Includes "mixed" ancestry; (c) Components may not add to totals because people may report more than one ancestry.

The cultural diversity of the Australian population has resulted in over 200 languages other than English being spoken by those migrants who have settled in Australia from different parts of the world. There are also more than 60 different languages spoken by Aboriginal and Torres Strait Islander Australians among those languages. The 2006 Census of Population and Housing found that 3.1 million people (16 per cent of the population) spoke a language other than English at home, (see table 2), with an increase of 285,000 people or 10 per cent since 2001. This figure in the State of Victoria however was much higher reaching 25 per cent of Victorian residents speaking another language at home. In addition, over 55,000 people spoke an Australian Indigenous language at home (ABS 2006).

Immigration policies over the last 60 years that have welcomed migrants from countries in which those languages are spoken reflected the extent to which these languages are spoken. At the end of World War Two, while the number of settler arrivals from countries such as Italy and Greece was high, large numbers of settler arrivals from Lebanon and Vietnam were also observed during the 1970s and 1980s and from China in the 1990s.

Italian, Greek, Arabic, Cantonese, Mandarin and Vietnamese - the six most commonly spoken languages other than English - were with speakers of these languages together comprising 7 per cent of the total population in 2006 (see table 2). Greek, Arabic and Italian speakers had the largest proportions of Australian-born speakers, reflecting the fact that these languages were mainly brought to Australia now more than 20 years ago and have been maintained among the children of those migrants. Languages spoken by migrants arriving in Australia more recently, such as Mandarin and Filipino, had a smaller proportion of Australian-born speakers (ABS, 2006).

Table 2. *Persons Who Speak a Language Other Than English At Home, by language spoken - 2006*

	Males ('000)	Females ('000)	Persons ('000)	Proportion born in Australia (%)	Persons as a percentage of pop.
Italian	154.0	162.9	316.9	42.1	1.6
Greek	124.3	128.0	252.2	52.8	1.3
Arabic	125.0	118.7	243.7	42.9	1.2
Cantonese	115.7	128.8	244.6	21.4	1.2
Mandarin	103.3	117.3	220.6	12.6	1.1
Vietnamese	94.3	100.5	194.9	30.3	1.0
Spanish	46.6	51.4	98.0	24.4	0.5
Tagalog (Filipino)	36.3	56.1	92.3	15.0	0.5
German	34.7	40.9	75.6	19.9	0.4
Hindi	36.4	33.6	70.0	13.7	0.4
Macedonian	34.0	33.8	67.8	40.1	0.3
Croatian	31.3	32.3	63.6	34.1	0.3

Australian Indigenous languages	27.1	28.6	55.7	96.4	0.3
Turkish	27.1	26.8	53.9	42.3	0.3
Polish	23.8	29.6	53.4	21.1	0.3
Serbian	26.2	26.4	52.5	24.4	0.3
Maltese	17.8	18.7	36.5	26.5	0.2
Netherlandic	16.2	19.9	36.2	14.4	0.2
All other languages(b)	424.8	448.2	873.1	18.5	4.4
Total	1 499.0	1 602.5	3 101.5	28.8	15.6

Source: ABS, 2006 Census of Population and Housing.

- (a) Persons whose birthplace was not stated, inadequately described, n.e.c. or at sea were excluded prior to the calculation of percentages; (b) Excludes languages that were not stated, inadequately described, and non-verbal so described.

Table 3. *Persons Who Speak a Language Other Than English At Home, by proficiency in English - 2006*

	Age group (years)					
		0-24	25-44	45-64	65 and over	Total
Total population speaking other than English at home						
Speaks English well or very well	%	83.6	88.2	78.5	60.3	80.8
Does not speak English well	%	8.7	9.6	18.0	29.2	14.0
Does not speak English at all	%	4.3	1.1	2.5	9.2	3.5
Total persons(a)	000	963.4	1 008.3	753.6	421.0	3 146.2
Australian-born population speaking other than English at home						
Speaks English well or very well	%	81.2	96.2	93.5	82.8	86.5
Does not speak English well	%	8.4	1.9	3.6	9.5	6.1
Does not speak English at all	%	6.0	0.5	1.0	3.6	4.0
Total persons(b)	'000	554.0	259.1	72.8	12.4	898.4

Source: ABS, 2006 Census of Population and Housing.

BACKGROUND

Australian society was not new to being a multilingual society. There was ethno-linguistic diversity from the early days of European settlement. During the past 200 years, there were times when multilingualism was recognised and practiced and others when it was side-lined and discouraged. Therefore, there has been a periodic tension between monolingualism and multilingualism in Australia over time (Clyne, 1991). This tension has been a theme of debate between scholars over many decades. Clyne, for instance, refers to such a discussion by Bostock. He writes:

It has been stated (Bostock, 1973) that Australian governments have directed their policies towards achieving monolingualism. And yet Australia has an ethnolinguistic mix probably unparalleled in any other nation. It now has a more comprehensive and positive National Policy on Languages than any comparable country. This paradox is characteristic of a tension that has existed, throughout the history of white settlement in Australia, between three symbolic relationships of language and society: English monolingualism as a symbol of a British tradition; English monolingualism as a marker of Australia's independent national

identity; and multilingualism as both social reality and part of the ideology of a multicultural and outreaching Australian society. This tension predates the federation of six British colonies into an Australian nation in 1901, and has not yet been resolved. (Clyne, 1991, pp.1-2)

This multilingual approach and reality changed with the onset of the 20th century. Under pressure from jingoistic patriotism pushed during the wars (First and Second World Wars) Australia's previous openness towards languages changed significantly. It required the cultural political change of the 1970s to re-establish a multiculturalist approach which allowed Australia to appreciate its more than 270 ethnic communities that spoke more than 200 languages. Multiculturalism in the early 1970s, especially in the field of education, enabled ethnic communities to re-acquire access to their language and not feel guilty doing so. In recognition of the psycho-social benefits migrant children might gain by maintaining their community language, many of the ethnic communities were given the possibility to learn and retain their language and culture both in mainstream State schools when possible or in after hour schools (particularly in Saturday Schools) and also in private independent schools. Carsaniga discusses the monolingual perception of multilingualism as an "obnoxious policy invented by a few 'lefties' in the early seventies"; however, he says "[i]n fact, multiculturalism and its complementary aspect, multilingualism, are the normal, natural condition of the most human societies, independent of 'culture' in the academic sense" (Carsaniga, 1994, p. 4). Languages stand in the centre of many initiatives to support and promote multicultural recognition. To Smolicz the Australian example is a special one and he says, the "special feature of the Australian overarching framework is that it includes English as a shared language for all people and but not to the exclusion of other languages that are spoken in the community" (Smolicz, 1997, p. 171).

TEACHING OF LANGUAGES

For Australia has a record for teaching languages especially at primary and secondary school levels with every child receiving at least some instruction in languages. As mentioned in a study, "Australian schools, and particularly those in Victoria, have been praised internationally for their commitment to teaching a wide range of migrant languages through the state school system" (cited in Willoughby, 2006, p. 3). This development is part of a comprehensive plan to develop multicultural education which aims at promoting diversity in education. In terms of external forces that affect language maintenance, the advent of explicit policies of multiculturalism in Australia in mid 1970s and onwards had a great impact on language maintenance for migrants. This allowed them to maintain their own language, identity and other cultural traits, while still taking part in the general life of the nation.

To one scholar (Willoughby, 2006) the State of Victoria was considered ahead of much of Europe in language provision when the variety of the languages offered and the length of the time they have been available are considered. However, Willoughby continues, the system is not without its problems. She writes:

Most notably, Victorian students are largely disinterested in LOTE learning in senior high school, with only 13.5 per cent of students taking Year 12 LOTE in 2003. Victoria does not collect figures on the number of background speakers, as opposed to foreign language learners, who study LOTEs at secondary level. However, ACMA research from the mid-1980s found that only 1 in 8 background speakers were studying their heritage language at school...it remains a weak point of our heritage language programs that comparatively few students continue on to VCE level, and a number of languages also experience difficulty attracting students in the lower school years (Willoughby, 2006, p. 3).

In addition to the lack of interest in language learning especially in senior high school level, the absence of a strong link between learning languages and valuing it in the vocational field is another negative situation that places language learning in a disadvantaged, weaker position, which might be considered as one of the causes of the indifference towards language learning. The devaluation of learning languages in the workforce is explained by Schanzer (cited in Keaney, 1999) as follows: "Despite the value placed on the study of foreign languages by many educators, few Australians from English-speaking backgrounds ever master a foreign language and most Australian business and government departments do little to encourage foreign language skills as the route to a successful career" (p. 9).

Another problem that languages encounter in Australia is the lack of financial support given by the Federal Government. After a prosperous period in 1970s and 1980s, the federal government cut the language funding due to an inclination to pursue economic rationalism as explained in the Lo Blanco report,

...during the late 1980s economic rationalism began to dominate policy discourse, with the result that government programs that were thought to give a poor economic return on their funding investment came under scrutiny. For language programs this approach resulted in cuts to funding for heritage language teaching, with policy increasingly stressing the need to limit federal funding of language programs to specific languages felt to be important for the purposes and trade (cited in Willoughby, 2006, p. 5).

Furthermore, there was the additional difficulty of finding qualified teachers for language delivery. To meet the demand in language teaching, the number of "overseas born and educated non-native speakers of English graduating from teacher education courses continues to increase" (Santoro, Reid, & Kambler, 2001, p. 63). Equally stating the point Keaney observes talks to Leal's study, "In all States and Territories, the supply of language teachers is regularly seen as insufficient for current and emerging needs" (cited in Keaney, 1999, p. 11). Moreover, Keaney continues, "and many teachers are poorly trained" and he adds Quinn's advice in the Senate Standing Committee in 1984: "...[his] impression [was] that less than 50 per cent of teachers in secondary schools are competent in the language they teach, and again, less than half would be competent in up-to-date [teaching methods]" (Keaney, 1999, p. 11).

Multicultural education was strongly supported and took the form of ethnic language schools and institutes; community languages taught in mainstream schools and universities and other initiatives including ethnic festivals (Leuner, 2010, p. 28). During the mid-1970s the multicultural policy also enabled multicultural media to flourish (SBS Radio, SBS Television, and ethnic press) and ethnic organisations received support from the Australian Government for maintenance of their cultures. As explained by Brown, SBS which broadcasts in 68 languages "is a vehicle for stories that would never be told, a version of Australia that would never be seen" and he adds that "Diversity or 'foreignness' was presented as unpronounceable, unpalatable or incomprehensible in the Australian media landscape" (Brown, 2008, p.1). In addition to radio and television that reflected the diversity in Australian society, there are also community newspapers that are published in their own language.

To many scholars the benefits of learning languages are various: educational, intellectual, personal, social and cultural. As explained by Crawford, one of the goals of the Australian Language and Literacy Policy of "a language for all" is that it "reflects [the] growing awareness that monolingual Australians are disadvantaged and should be given the opportunity to broaden their cross-cultural understanding through learning another language" (Crawford, 1995, p. 20)

The Victorian School of Languages (VSL)

The Victorian School of Languages (VSL) was founded in 1935 as a “special experiment” of Saturday morning language classes offered at the MacRobertson Girls High School located in the Melbourne suburb of South Melbourne (Mascitelli & Merlino, 2011). In its current form it teaches over 45 languages to about 15,000 students in its Saturday Schools at 41 centres and through distance education programs. According to one view the initial ‘special experiment’ was understood as a partial response to educational and linguistic needs:

A special experiment in providing morning classes at MacRobertson Girls School for pupils who desire to learn modern languages was commenced in 1935. At the beginning of the year, two classes of pupils took up the study of Japanese. In the second term, in response for Italian, three classes of pupils and two classes of teachers were started successfully... (cited in Mascitelli & Merlino, 2011)

Until the introduction of Japanese and Italian at MacRobertson Girls High in 1935, the languages offered within the Victorian education system were “mainly French and German with Latin and Ancient Greek in a smaller number of non-government schools” (Mascitelli & Merlino, 2011).

Until the 1930s the Australian education system was based mostly on the “English only” language education approach and therefore the emergence of the precursor of the Victorian School of Languages (the “Special experiment” in 1935, did so in not very favourable circumstances. This closed view of languages remained the case until the 1970s and learning ethnic languages gained importance and in 1987 Australia finally adopted “the first languages policy approach known as the Lo Bianco report” (Mascitelli & Merlino, 2011). 1987 was also the moment when the VSL acquired its new name after precursors known as the “special experiment” and the Saturday School of Modern Languages paved the way for greater expansion of language delivery in Victoria. As was aptly expressed by Mascitelli & Merlino (2011):

What is significantly different in these two events is the context. The National Languages Policy was amongst other things, a product of a new demographic panorama which reflected a new Australia while the emergence of the predecessor of the VSL, the “special experiment”, occurred in a different kind of Australia which had little or no major emigrant community and the Victorian education authorities responded to entirely different circumstances. The introduction as this “special experiment” of new languages such as Japanese and Italian, especially in the inter-war period, provided austere beginnings for what is today the VSL (Mascitelli & Merlino, 2011).

The VSL proved vital to the teaching of those languages where they were unavailable in the mainstream schools. It was the backbone of language provision in Victoria as explained by Willoughby:

The Victorian School of Languages, a government institution which offers after-hours and distance education classes for students wishing to study a language not taught at their school, is the lynchpin of Victoria’s heritage language program and, in 2004, provided students with the opportunity to study 44 languages-36 to VCE (Victorian Certificate of Education) level (Willoughby, 2006, p.3).

SURVEY METHODOLOGY

A questionnaire /survey method is used in order to collect data on the attitudes and demographic characteristics of the respondents. The survey is the first of its kind at the VSL closed community and

it had the support of the management. This anonymous survey with a commentary section at the end is the first survey of its kind of the VSL community. Out of about 800 VSL staff members, a total of 552 took part in the survey which consisted of 46 multiple choice questions and a commentary part at the end.

Data gathered from the VSL staff members with different responsibilities - teachers, assistant teachers, (area) managers, coordinators, school council members, and administrative staff- working at the VSL head office or in 41 VSL centres. The valid response rate is between 460 and 552. Information on respondents' demographic characteristics, language biography, their VSL background, their views on issues like multiculturalism, multilingualism, languages, the Draft Shape of the Australian National Curriculum for Languages, as well as the role of the VSL in language provision was gathered through the survey made available online to all VSL staff.

The survey consisted of 7 sections. The first section was titled "Demographic profile of the survey respondees" which had 10 questions in total related to respondents gender, age, the length of their stay in Australia, the number of languages they speak, their country of birth, their educational qualifications, ethnic self-identity, their role at the VSL and the length of their association with the VSL.

The second section was about Multiculturalism in Victoria-Australia with 6 questions inquiring respondents' views about ethnic community organisations, maintaining ethnic identities, monocultural expectations and sensitivity to cultural diversity of teacher education programs in Victoria-Australia.

The third section, on the other hand, was called as Multilingualism in Victoria Australia and consisted of 6 questions focusing on respondents' views on "Victoria as a multicultural society", languages provoking controversy, emphasis on a monolingual society, Department of Education allowance of multilingual abilities, or the match between the needs of the communities and access to appropriate languages.

In the fourth section respondents were asked to share their views on *Future of Languages* where they were asked 18 questions ranging from choosing an appropriate term to define non-English languages in Australia, to what they thought about the coordination, planning, and promotion of languages delivery. In addition, they were asked if they agreed with the statement that "Victoria is better than the rest of Australia in encouraging language learning," or what they thought about some languages with low enrolment rates being in danger of not being offered any longer. In this section respondents were also given a chance to share their views on awareness of social and community benefits of learning languages in schools and the wider community, or why students choose to do languages, or what they thought about students losing interest in language learning, or the difficulty of finding qualified teachers for language teaching. Respondents were also asked to share their views on the failure of initiatives linking language learning and vocational skills, or lack of support from universities in language education. Moreover, they shared what they thought about the future of languages or what they thought about some points in the Draft Shape Paper of Australian Curriculum for Languages.

In the fifth section respondents shared their views about the Role of the VSL. They were asked to respond to questions related to the VSL's position, its strengths and its attributes that need to be improved.

Finally, respondents were asked to make comments on future of languages and the role of the VSL in the open-ended commentary part of the survey.

Main findings

Finding 1

Out of 517 respondents that answered the questions related to gender in the demography section 409 (79.1 per cent) were female and 108 (20.9 per cent) were male. 434 (83.90 per cent) of them were born in another country and only a small number of 83 (16.1 per cent) were born in Australia. 447 (86.5 per cent) of these respondents were (are) teachers at the VSL.

Finding 2

Out of the 502 respondents who chose to share their views on the section related to multiculturalism indicated that education programs in Victoria are sensitive to cultural diversity. However, 181 were not sure about or they disagreed with the statement of the “sensitivity to cultural diversity in Victoria”.

As it can be observed in the table below, 216 of the respondents agreed that there is an indifference to the decline of the ethnic media outlets in Australia and 226 of them were not sure.

Table 4: Q.16: *There is indifference in the community to the decline of ethnic media outlets in Australia.*

Answer Options	Response in %	Response Count
Strongly Agree	8.8%	44
Agree	34.3%	172
Not sure	45.0%	226
Disagree	11.2%	56
Strongly Disagree	0.8%	4
<i>answered question</i>		502
<i>skipped question</i>		50

Their views on the statement below demonstrate that, out of 502 respondents, 220 (43.8 per cent) thought that there are monolingual expectation in Australia despite much talk about cultural diversity. It was followed by a proportion of 137 people (27.3 per cent) that were not sure. Only 99 of the respondents (19.7 per cent) disagreed with the statement.

Table 5: Q.13: *There are monocultural expectations despite much talk about cultural diversity.*

Answer Options	Response Percent	Response Count
Strongly Agree	9.2%	46
Agree	43.8%	220
Not sure	27.3%	137
Disagree	16.7%	84
Strongly Disagree	3.0%	15
<i>answered question</i>		502
<i>skipped question</i>		50

When they were asked what they thought about the coordination, planning and promotion of languages delivery, out of 471 respondents, a total of 293 (60.9 per cent) agreed that they were not sufficient as the table below demonstrates.

Table 6: Q.24: *There is insufficient coordination, planning and promotion of languages delivery.*

Answer Options	Response in %	Response Count
Strongly Agree	19.3%	91

Agree	41.6%	196
Not sure	20.6%	97
Disagree	17.0%	80
Strongly Disagree	1.5%	7
<i>answered question</i>		471
<i>skipped question</i>		81

Finding 3

Out of 498 respondents, 90 per cent think that Victoria is a multilingual society and 58.5 per cent agree that languages still provoke controversy. Out of 471 respondents, 180 (38.2 per cent) think that the most important reason why students choose to do languages is because they think learning languages is useful and valuable. And 122 (25.9 per cent) agree that students do languages because it brings bonus points for the future studies. The most important reason for students doing languages for 117 (24.8 per cent) respondents is because their parents insist. On the other hand, the least important reason why students choose to do languages to 128 (27.2 per cent) respondents is its being obligatory. It is followed by 104 (22.1 per cent) people who think that one of the least important reasons for students' choosing to do languages is the peers and that their parents insist.

Finding 4

It has always been a debate to decide on an appropriate term to use for non-English languages in Australia. Because Languages Other Than English (LOTE) had been the official name for the languages as the school subject for some decades, it has been one of the common terms to define non-English languages. One other term, "Community Languages" to define non- English languages is touched upon by Michael Clyne:

THE TERM "COMMUNITY LANGUAGES": This term has been used in Australia since about 1975 to denote languages other than English and Aboriginal languages employed within the Australian community. It legitimizes their continuing existence as part of Australian society. Terms that have been found discriminatory and inadequate for the same languages are: *foreign languages*, unsuitable, for languages that are very much part of Australian life; *migrant languages*, which does not account for their use by Australian- born generations; and *ethnic languages*, which ignores the use of 'community languages' by members of other ethnic groups (Clyne, 1991, p.3).

As can be observed in the above quotation from Michael Clyne's book dated 1991, Clyne favoured the term "*community languages*" to define non-English languages. Many people, including language teachers, on the other hand, use term "LOTE". However, as can be observed in Australian National Curriculum Authority's official web page, when referring to the non- English languages the term "Languages" is used, which might be interpreted as the present and future tendency is the term "languages" in Australia. In addition, in March 2012, it was officially announced by the Victorian Department of Education and Early Childhood that the term the term "LOTE" would be replaced by the term "languages" to define the non-English languages (DEECD memo, 2012). When the VSL staff members were asked which of the given terms they preferred using when referring to non-English languages, diverse opinions were observed as can be seen in the following table.

Table 7: Q.23: *There are diverse opinions about defining an appropriate term for non-English languages in Australia. Which of the following do you think BEST defines non-English languages in Australia?*

Answer Options	Response in %	Response Count
Languages	12.5%	59

Languages Other Than English (LOTE)	68.4%	322
Community Languages	9.1%	43
Ethnic Languages	3.6%	17
Migrant Languages	1.9%	9
Foreign Languages	4.5%	21
		<i>answered question</i> 471
		<i>skipped question</i> 81

Out of 471 people who responded to this question 322 (68 per cent) preferred using “*Languages Other Than English (LOTE)*”. It was followed by 59 (12.5 %) people who chose to use the term “*Languages*”.

When respondents asked about their views of the general attitude towards language learning, as it can be well observed in the table below, out of the 471 respondents who chose to answer the question number 27, a majority of 398 people, agreed that there is a lack of understanding of the benefits gained from learning languages at schools as well as the in the wider community. Also, out of 471 respondents, 400 people (84.9 per cent) think that some languages with low enrolments are in danger of no longer being offered and a similar threat could occur to other languages.

Table 8: Q.27: *Social and community benefits gained from learning languages are not widely understood both in schools and the wider community.*

Answer Options	Response in %	Response Count
Strongly Agree	34.8%	164
Agree	49.7%	234
Not sure	6.6%	31
Disagree	7.9%	37
Strongly Disagree	1.1%	5
		<i>answered question</i> 471
		<i>skipped question</i> 81

Moreover, more than half of the respondents (almost 80 per cent) share the same worries about the difficulty in finding qualified teachers for languages. Also, almost half of them (46 per cent) agree that initiatives have failed to link language learning to vocational skills of the workforce. More than half of the respondents (about 60 per cent) also agree that universities are not playing a positive role in language education.

Finding 5

Out of 460 respondents who answered the questions in this section, 448 (97.4 per cent) people agree with the statement that “VSL is making a positive contribution to language learning”. When they are asked about the strongest attributes of the VSL, 174 (37.8 per cent) people thought that it is good at what it is doing. 153 (33.3 per cent) of them thought its being a public school is its strongest attribute. 97 (21.1 per cent) people, however, thought that VSL community is its strongest attribute.

On the other hand, when they were asked what they thought about the attributes of the VSL that needed the most improvement, 156 (33.9 per cent) people agreed on its technology, facilities and materials. Ninety-five (20.7 per cent) people, on the other hand, thought that its funding needed the

most improvement; and 79 (17.2 per cent) people thought that it was the relationship with the Department of Education that needed the most significant improvement.

Themes discussed in the commentary section

In the commentary segment of the survey, 236 respondents chose to make comments – equalling 29 pages of commentary. On the other hand, 316 respondents chose not to comment. Most of the commentary made by the participants was on the role of the VSL. They agreed on the important role that the VSL plays in language provision. For instance, one of the respondents focuses on the vital importance of what VSL does and how it should be promoted, “I believe that the VSL is doing a great job in the promotion of languages to the wider community; however, improvement is needed with respect to the provision of computer and internet access, particularly for VCE classes” (VSL Survey, 2011). Another example of such a view is as follows “The VSL is a fundamental keystone in promoting the importance and future of language learning through the state sector. However, there must be more cooperation through host day schools to promote the VSL via advertising. Open/Multicultural Days could also be conducted at Centres for promotional purposes” (VSL Survey, 2011).

It is believed by most of the respondents that the VSL is still playing an important role in promoting language diversity. Some suggested many other schools like the VSL should exist, for, they commented, what VSL has been doing is very important. To most of the respondents, VSL has a vital role to promote and maintain the community languages at present; and they added that it would preserve its importance in the delivery of languages in the future as well.

A considerable number of respondents made comments on some of the VSL contributions that need to be improved. Most of them focused on the inadequate facilities and technology. A respondent says “It requires greater funding in order to provide a higher quality level of education through improved technology, facilities and materials” (VSL Survey, 2011).

Some commentaries were made to send a message to the Department of Education. To give an example, a respondent writes, “There is no doubt of the development of VSL in the future. However, to what extent it develops is wholly depending on the link between the department, school and community as well as teachers to foster the interest and need to learn the languages and cultures” (VSL Survey 2011). Those respondents believed that the Department should encourage and enhance the knowledge more widely in the society that multilingual citizens are not only valuable resources, but they are also very essential for globalization. Some other respondents focused mostly on the lack of promotion of the VSL. They wrote that “the VSL would benefit greatly if it were promoted more widely in the [local] communities” (VSL Survey, 2011).

Analysis

Victorian School of Languages community consists of approximately 800 staff members, most of whom are teachers with a majority born overseas. They agree on the importance of learning languages in Australia so as to maintain one’s language and culture, and thereby maintain their identity. However, the findings of the survey, which asked their views on different issues related to languages, demonstrate that they share a common fear that learning languages are not valued enough in Australia. For example, most respondents were of similar opinion that there is a lack of interest in language learning among students and there is also crucial indifference to declining ethnic media outlets which can be accepted as a related attitude towards languages. Furthermore, almost half of the respondents felt that there is too much emphasis on an English monolingual

society and that the English mind set when challenged tended to trigger a “languages still provoke controversy” sentiment.

In addition, most of the VSL community agree on the fact that although cultural diversity is accepted as an educational and societal policy in Australia, the applications of it in reality fails to realise such a policy. More than the half of the school community agrees on the fact that there is insufficient coordination, planning and promotion of languages delivery. Also, almost half of the respondents share the opinion that the needs of the society and appropriate language access do not match. A majority of the respondents believe that there is the threat of no longer being offered for some languages with low VCE enrolments and this could be the case for some other languages.

Moreover, most of the respondents agree on similar issues that affect language learning negatively. For instance, most of them are of the same opinion that finding qualified teachers for languages is not easy. Also, they share similar opinions about the role Australian universities play in language delivery. The majority of the respondents think that universities do not support language education enough. Almost half of them agree that the link between language learning and vocational skills of the workforce is not as strong as it should be.

One of the positive aspects of language delivery many respondents agreed on was the important role the VSL plays in language delivery. However, they are of the opinion that the VSL is not well-enough known to the public and they think that more public awareness promotion is needed to inform the public of the vital service in language delivery offered by the VSL. In addition to promotion, many believe that the VSL fails to receive the support to have more up-to-date language learning, with more qualified teachers given more Personal Development (PD) sessions and with classrooms with better facilities.

CONCLUSION

As mentioned by Michael Clyne “language is central to every sphere of our lives...it pervades our most crucial as well as most trivial relationships, at home, at work, and elsewhere” (Clyne 2007, p. 2). Moreover, language is crucial in domains which are concerning us such as peace, and tolerance, security and diplomacy, education, health, social justice, national cohesion, international trade and tourism. And it is through language that people are identified as belonging and not belonging (Clyne 2007, p. 2). Since language holds such a crucial role in our lives, language learning has equal importance.

Although stop start efforts have been made to help languages survive in Australia, there have been perennial difficulties affecting language learning. These difficulties include issues such as inadequate funding, difficulty in finding qualified language teachers, lack of support from vocational institutions or universities, lack of interest among students and the cultural context or the dominance of a monolingual mind set. Despite these problems, language provision in Australia still holds its importance and is seen as a cultural acquisition to the development of Australian society. One study indicated that language learning offers:

[n]umerous outcomes claimed ambitiously on behalf of language learning, not at least of these is that which asserts that learning a Language Other Than English (LOTE) will, for Anglo-Australians, open windows to other worlds and unlock different world views. Indeed, proponents of language learning see one of the major benefits as the development of the individual Australians of more favourable and less insular, cross-cultural attitudes (McMeniman & Evans, 1997, p.1).

Conference proceeding

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In order to support a better understanding of themselves and each other among ethnic communities, Australia adopted a multicultural education program over three decades ago as a partial result of its multicultural structure. Therefore, the present education system of Australia tries to provide children of various ethnic communities with access to their languages in mainstream schools. With such an over-arching education policy, the Victorian School of Languages, with its unique structure in Victoria, holds an important position in providing a supporting role to language provision to children of various ethnic origins by language delivery in over 45 languages in its 41 centres and by offering distance language courses to about 15,000 thousand students.

The Victorian School of Languages which “was unique in its origins and accidental in its role” (Mascitelli & Merlino, 2011) has had a very crucial role in the field of language delivery and this study provided a snapshot of the responses of its protagonists and their inside view of the instrument they treasure most: languages. Although most respondents share concerns about the future and uncertainty of languages, they still have the hope that languages can survive with the right initiatives and appropriate support.

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Policy for All? The Impact of Centrally Developed, Universally Applied Policy on Decision-Making in Western Australian Public Schools

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ABSTRACT

In many organizations, policies and procedures are developed to be followed and complied with by all managers and staff in each branch, geographical location and community. These centrally developed governance frameworks are deemed to apply to all decision-making regardless of contextual circumstances that apply locally. Government schools are no exception. In Western Australia (WA) principals of public schools are provided with guidance for their decision-making by centrally developed educational policy and procedures included on a regulatory framework. Policy writers within the central office have worked under the assumption that policies and procedures can be developed that will apply universally to all schools and circumstances.

This paper considers the impact of this assumption on risk-taking in decision-making by principals in schools that have different characteristics within the school community. The paper reflects on a study of principals in a stratified random sample of 253 WA public schools. It was found that principals of schools where local circumstances were different, including geographical and cultural factors, were more likely to take risks in decision-making. As a consequence these principals were not compliant with the Departmental regulatory framework.

Interviews with principals also indicated that policies created centrally were often not applicable to schools in remote locations or with different cultural characteristics, such as high proportions of Indigenous students or students from a wide range of cultural backgrounds with English as a second language. The dilemma for principals is to be able to translate locally identified needs into a local educational program within a school and simultaneously comply with all State and Commonwealth departmental requirements.

Keywords: Governance, decision-making, principals, schools.

GOVERNANCE IN EDUCATION

Since the 1960's the political climate of Western nations and demands of cultural minorities for increased participation have contributed to the rise of school-based decision-making and

management as an administrative strategy in education. In a comparison of 19 countries, the 2004 Organization for Economic Co-operation and Development (OECD) report found that in 14 countries, decisions were being made at a more decentralized level in 2003 than was evident in 1998. Karstanje (1999) reported that Western, Central and Eastern European countries were moving toward decentralization and deregulation to allow schools to respond flexibly to local or regional needs and circumstances. Also in China there has been a strong trend to decentralization in educational governance (Mok, 2001).

In contrast, Australia was found to be one of the countries with the most centralized educational decision-making (Caldwell, 2006). This is despite research and government reports, such as the Karmel Report (1973), recommending that Australian schools move towards a more decentralized form of management. A commitment to decentralization and devolution of authority in education was made at a national level following the election of the Australian Labor Party in 1983 (Caldwell, 1990) and national and state government initiatives over recent years are still tending to move in this direction (Eacott, 2009; Council for Australian Federation, 2007; Department of Education and Training, 2009). However, an emphasis on standards-based accountability, such as is occurring in Australia, reinforces the responsibility of schools and principals to conform with and achieve institutionally set goals.

Corporate governance, by which organizations are directed and controlled, includes the processes of leadership, control, accountability and ethics in the organization. A key aspect of the governance structures in public sector agencies, including schools, are the Commonwealth and State legislative frameworks that determine the agency mission and guide the implementation of programs, and associated organizational structures. Within the WA Department of Education, directors and executives provide leadership and management to link Departmental strategic plans to broader Commonwealth and State legislation and strategic directions, and to ensure compliance to public sector standards and ethics across the public school system. Barrett (1999) emphasized the importance for accountability of clear designation of roles and responsibilities of each of the participants in the governance framework. Accountability for achievement of outcomes and maintenance of standards within each school is the responsibility of the principal as plans are put into effect in each individual school under the principal's leadership. The requirements and responsibilities for principals are documented in policy and procedures documents that comprise the regulatory framework. The regulatory framework of policies is a key accountability structure that assists in managing risk and maintaining consistent quality and standards in service delivery across a wide range of schools in the state of Western Australia.

In Western Australia, principals are provided with guidance for their decision-making by centrally developed educational policy and procedures included on the regulatory framework. This approach to corporate governance assumes that policy positions and their impact will be consistent across a range of contexts. Policy writers within the central office work under the assumption that policies and procedures can be developed that will apply universally to all schools and circumstances. As a consequence of these assumptions, policies and procedures are developed to be followed and complied with by all managers and staff in each school type, in each geographical location without regard to contextual issues such as students' needs or community expectations. The policy and procedures documents are deemed to provide an efficient framework for decision-making regardless of the contextual circumstances that apply locally. Such a view aligns with the position of Comte and Durkheim (Whiteley A, 2004; Bullock, Stallybrass & Trombley, 1988) where universal laws are invariant across societal contexts. Proponents of decentralized decision-making have reacted against this approach to provide an alternative perspective of society and organizations

(Calas & Smircich, 1999). Eacott (2009, p.2) argues that the concept of educational leadership needs “to move beyond modernist thinking and embrace the complexity of ever shifting cultural, social, historical and political relationships”.

Consistency and universalism have been lauded as critical aims in public education to ensure equity of access and opportunity for all students (Jamieson & Wikely, 2001). Compliance with universally required policy positions in education and schools promotes this ideal. However, as Jamieson and Wikely (2001) points out, this view is ideologically incompatible with the paradigm of responding to the individual needs of children. The current educational culture is dominated by the forces of managerialism and standards which creates a dilemma for schools in trying to make decisions to meet the learning needs of their individual school whilst meeting the externally imposed requirements of these bureaucratic influences (McMahon, 2001). The Federalist Paper (Council for Australian Federation, 2007) recognized that Commonwealth and State regulation, in addition to operational policies within school systems, impose an administrative burden on schools. Eacott (2009) takes this further, and states that these government policy initiatives, including professional standards, league tables, and school-based management provide evidence of the politicization of education. These government agendas and policy initiatives place pressure on principals to comply with external requirements that may be contrary to identified strategies for education at the school level.

To address issues such as client satisfaction, social justice, and equity of service provision, the Department of Education, as the principal provider of education across the state, needs to ensure that services are provided in areas and geographic regions that are not commercially viable and where no other providers exist. The quality of the process of assessing the needs in such areas and provision of educational services that meet these identified local needs is fundamental to the success of schools and educational strategies put in place by the Department. Information gathered through consultations with peak bodies, local community organizations and community members is a valuable resource for planning to determine local needs. Where local stakeholders are aware and accepting of decision-making processes there are opportunities for an improved contribution to the planning and development of services that begin to address the issues of client satisfaction, justice, and equity of service provision.

The dilemma for principals is to be able to translate the locally identified needs into a local educational program within a school and simultaneously comply with all State and Commonwealth departmental requirements. Transparency and promotion of decision-making processes within the school and broader community are critically important to achieve the balance of local input with external requirements. Improved transparency of the use of information can enhance both the public sector's on-going contribution to education and the acceptance of new educational strategies within the community. This is a component of corporate governance of particular significance to the public sector. Public awareness of the performance of schools promotes community expectations of the quality of services delivered. Communities have an expectation that outcomes achieved across schools will be equitable across all schools regardless of geographical or other local factors. The regulatory framework is in place to assure consistency in application of policy and procedures, but a limitation may be that consistency in inputs may constrain decision-making by principals and the development of innovation in service improvement that would achieve more equitable outcomes for students.

STAKEHOLDER IMPACTS ON DECISION-MAKING BEHAVIOUR

The move to decentralization of governance in the public sector, and in particular in schools has been noted in many countries as part of programs of economic reform and globalization. Although the rationale for such governance changes may be initially driven largely by an economic business case, a subsidiary outcome of shifting control from central hierarchies to local authorities or communities can be to make service delivery more responsive to local user needs. Bardhan (2002) suggested it provides an opportunity for increased participation in governance and decision-making for otherwise disenfranchised communities.

In the context of decision-making by school principals, these stakeholders include parents and community members in the school locality. The influence of corporate governance mechanisms on parents and community members and their involvement in decision-making is reflected in the educational literature. It is long established that having a shared vision and goals for a school has the potential to unite a school and its community (Bennis & Nanus, 1985) and studies in several national contexts have shown that involvement of stakeholders, such as community members, is associated with higher achieving schools (Hallinger & Heck, 1999; Anderson & Minke, 2007). Fullan (2007, p.189) goes further to claim that the research shows that “the closer the parent is to the education of the child, the greater the impact on child development and educational achievement” and cites a range of educational research studies to support this conclusion. The model of parental involvement developed by Hoover-Dempsey and Sandler (Anderson & Minke, 2007) links involvement in their children’s education with student outcomes. Parents, as their child’s first educator, have knowledge about their children’s skills and learning needs and a vested interest in their educational achievement, so such research findings are intuitively reasonable. Laycock (2001) reports success in a community education program in an area of second and third generation unemployment that was well supported by the local community and emphasizes the importance of acknowledging the community contribution as an integral component of planning and provision of education. There is consensus across the literature on the importance of the role of parents and community in contributing to the educational outcomes of schools. It is less clear to what extent and how this occurs in different communities.

The relationship between the organizational structure and administration of a school and its broader environment and community is significant in the decision-making process. Hallinger and Heck (1999) indicate that the extent of collaboration and engagement with the community are important because community expectations and beliefs influence the attitudes of principals. The information perspective described by Hoy and Miskel (2005) treats the external environment as a critical source of information for decision-makers in schools. They argue that problems for principals can arise due to uncertainty about factors in the external environment.

An important factor in the external environment that impacts on principal collaboration and engagement with the community is the location of the school and characteristics of the community it serves. Contingency theory (Fiedler, 1967; Fidler, 2001; Morgan, 2007) suggests that leadership needs to be tailored to the circumstances and the external context including where the school is located. Minor (2004) argues that in education institutions that historically cater to a black student population, contextual understanding is essential in determining the appropriateness of governance structures and decision-making practices. Dalton, Fawcett and West-Burnham (2001) claim that the reconceptualisation of the relationship between schools and their external environment is one of the most significant changes in education this century. They express this as “many schools have been in their communities but not of their communities” (Dalton, Fawcett & West-Burnham, 2001, p.145). These studies reflect a common view of the importance of involving community

stakeholders in school governance processes. Decision-making processes that are based on local school sites can enhance the influence and contribution of stakeholders and community (Bauer & Bogotch, 2006).

Where a school is located in a community that differs from the norm, the expectations and needs of the community are more likely to be unique to that particular community. Fullan (2007) cites ethnicity and poverty/affluence as two examples of critical characteristics of educational communities that need to be considered in making policy decisions. Differences could be due to factors including geographical location or cultural influence such as would occur in remotely located communities. A study by Petrakis (2005) considered cultural values and idiosyncrasies as one of the factors impacting on individual risk propensity in decision-making. This view is supported by research in the United Kingdom that traced the development of a centrally advocated approach to school management and compared it to the reality of practice in schools. Levacic, Glover, Bennett and Crawford (1999) found that in schools with unique circumstances, such as in socially deprived communities, there were limitations in the use of the centralized management approach. Similarly, Karstanje (1999) indicates that in Western, Central and Eastern European countries there is recognition that local needs and circumstances do not allow educational problems to be solved by central governance at a distance. These findings imply that the need for decentralized decision-making may differ dependent on the characteristics of the local community and school.

In communities where the cultural background differs from that of the principal, the risk propensity and perception of stakeholders may differ from that of principals such that greater input from the community is required to reach agreement on decisions. Studies in rural decision-making have considered the impact of risk and uncertainty. Basic, Bregt, and Rossiter (2006) posit that in these circumstances incomplete information is one of the main constraints in decision-making. A principal in a rural or remote school, with a large proportion of Indigenous students, may face greater constraints in their decision-making due to lack of information about the expectations and needs of the community of the school. In addition, the expectations and needs of such a community are less likely to align well to policies that have been developed centrally to apply to generally applicable circumstances. It is therefore posited that there will be greater influence on principals from the parent and community stakeholders in these communities to take risky decisions in order to meet their differing needs and expectations. Such involvement is also required to attain lasting change.

REVIEW OF DECISION-MAKING BY WA PUBLIC SCHOOL PRINCIPALS

Napoli (2003) makes the point that management is expected to make the organization predictable and stable by putting systems in place. This is what the management of the Department of Education is doing via the regulatory framework. Legislation and regulations are necessary to allow organizations to have “a license to operate” (Napoli, 2003, p.14). In the case of schools these laws are provided in the School Education Act 2000 and Regulations 2001. However, in addition to these, over 140 departmental policies have been developed to further guide the decision-making and action of principals in government schools. Whiteley, A (2003) indicates that the language of rules, standards and procedures was introduced and institutionalized in industrial and later in service industries with the assumption that they would be interpreted similarly by employees as by the employers who wrote them. However, lack of consistency in interpretation of policy on the regulatory framework was found to be an issue impacting local school decision-making in Western Australian schools (Trimmer, 2003; 2011).

A review of the regulatory framework in WA schools (Trimmer, 2003) found that a number of principals had operated outside the mandatory policy requirements in circumstances where, in their professional judgment, it was impossible to comply with the policy because of local circumstances. Instead, they based their decision on the intent of known Departmental goals. Only six percent, of a sample of 71 principals interviewed, indicated that they would always comply with policy in all circumstances. The majority of principals cited instances where they had used professional discretion to make decisions that were contrary to mandatory policy and procedures. These principals maintained that this was necessary and provided explanations that highlighted the existence of specific circumstances that made compliance difficult or inappropriate (Trimmer, 2003; 2011). They also provided details of their decisions, that they deemed the most appropriate in the circumstances, and the subsequent outcomes. From the perspective of public sector management, lack of compliance leaves these principals and the Department exposed to risk as they are in breach of mandatory policy and are therefore open to disciplinary action should an untoward outcome eventuate. The Department is also at risk as they face public and Parliamentary scrutiny in a circumstance where there is no due process to account for the decision-making or action that was taken. Starr (2008) indicates that consideration of risk in schools “has risen dramatically in stakes and prominence”.

Interviews with principals revealed that situations where compliance had not been possible occurred on an on-going basis where local circumstances, including geographical and cultural factors, were such that the population of students or the community had significantly different characteristics than other schools. Policies and procedures developed centrally within the Department are intended to provide the most effective means of achieving the required outcomes in all schools and circumstances. Where specific school and community circumstances, including cultural and geographical factors, appear to demand a unique response, principals may make decisions that are not compliant with the established policy. Seventy percent of principals indicated that they were aware of instances where compliance had not been possible given the circumstances. In such instances it was felt that compliance may have resulted in inappropriate, inefficient or ineffective outcomes. Lack of consistency in interpretation was compounded by lack of flexibility in implementation across Western Australian school districts (Trimmer, 2003; 2011).

In a further study a theoretical model of factors impacting on reasoned risk-taking in decision-making was developed (Trimmer, 2011). Data was collected through the survey of principals in 253 WA public schools. The questionnaire included measures of both attitude and behavior of principals to determine whether reasoned risk-taking by school principals is a consequence of their perceptions of the governance mechanism of the regulatory framework, the experience of individual principals and the characteristics of key stakeholders within the school community. A stratified sample of schools was selected on the basis of district, geographical location, school type, and school size.

Demographic items were included to determine environmental and situational factors that could potentially impact on responses. These included factors such as the experience and expertise of the principal in regard to length and type of teaching and administrative experience and the type and size of school. The geographical location and ethnic composition of the school were also included as factors likely to influence the construct of “Stakeholder Influences” (Dunham et al., 1989).

A combination of Rasch and traditional statistical techniques, including structural equation modeling, were applied to test the measurement properties of the questionnaire and the hypothesized model. Rasch measurement was used to analyze the data and create a robust measurement scale. This psychometric technique provides current world best practice in the

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creation of linear scales in the human sciences. A factor analysis was then conducted to determine whether the items in the questionnaire were loading onto the constructs they were developed to measure. Components of the construct for Stakeholder Characteristics were identified that accounted for 64.4% of the total variance for the construct (Trimmer, 2011). The components included:

- Component 1: Geography; cultural composition
- Component 2: Seek community input as incomplete understanding
- Component 3: Diversity
- Component 4: Stakeholder input
- Component 5: District

The hypotheses were finally tested used Partial Least Squares (PLS) structural equation modeling. This analysis provides evidence of the effect of the concepts included in the model and consequently insight into governance structures, characteristics of schools and principals that influence decision-making in schools.

DISCUSSION AND CONCLUSIONS

The results of the analysis showed strong support for the model and hypotheses with principals in all types of schools with a high degree of uniqueness more likely to make decisions involving reasoned risk-taking. The results were consistent with comments made by principals in interviews (Trimmer, 2003; 2011) and align with the education literature (Bennis & Nanus, 1985; Hallinger & Heck, 1999; Anderson & Minke, 2007; Fullan, 2007) on the importance of the role of parents and the school community in contributing to decision-making in schools. There are significant implications in Western Australian public schools that include many schools with highly diverse populations, and schools in remote locations catering to Indigenous students.

Implementation of a system such as the regulatory framework assumes that all principals will interpret and action the policies in a consistent way in the range of circumstances that arise across schools and regions. This approach to corporate governance is common practice across public sector organizations and is consistent with other industrial and service industries (Whiteley, 2003). It also assumes that principals will interpret the policies similarly to the central office employers who produced them. The findings of the study provide evidence that both of these assumptions may be flawed.

The support for the effect of stakeholder characteristics on risk-taking in decision-making provides some evidence that this controlled view of governance and decision-making in this organization does not adequately describe the behavior of principals. It was found that stakeholder characteristics have a positive impact on risk-taking in decision-making with principals significantly more likely to engage in risk-taking where contextual factors differed from the norm. Interviews with principals also indicated that policies created centrally to be generally applicable were often not applicable to schools in remote locations or with different cultural characteristics, such as high proportions of Indigenous students or students from a wide range of cultural backgrounds where English is a second language.

To ensure the needs of individual students and the objectives of the organization were met, principals adapted policy to meet their individual school circumstances or made a considered

decision not to comply. This approach to decision-making is consistent with Napoli's (2003) view of the role of managers in organizations where managers need to change or bend the rules to ensure that decisions are made and strategies put in place to meet unforeseen and different situations. It also supports Stacey's (1996) view that managers are needed because organizations do not run according to a given set of rules, due to the interactions of members of organizations with each other and with stakeholders.

Members of the local community provide networks that assist principals in making decisions that are appropriate and fit the needs of these stakeholders and the wider community. These community networks were more often used by principals in their decision-making where schools were located in remote areas or had significant numbers of Indigenous students. In these schools principals had to consider the cultural implications of any decision if a solution or strategy was to be successful. Seddon, Angus and Poole (1990) express the view that a key impetus for increased community involvement in schooling arises from a democratic sharing of the institutionalized power in the governance of education. They argue that equitable participation and outcomes of schooling requires dissemination of power and control from current hierarchical structures to more devolved governance through school communities. These findings are also consistent with Mok (2001) who indicates that the power relationship between managers and stakeholders impacts on the process of governance in the provision of government services such as education. Research on parental involvement in education has provided evidence that where commitment and responsibility are shared between parents and the school, student educational outcomes are improved (Cavanagh & Dellar, 2003).

CONCLUSION

The findings of this study showed that in practice many principals make decisions that are non-compliant with governance structures. They make decisions based on consideration of the individual needs of students, their school and local communities in addition to, or in spite of, the requirements of the regulatory framework. This can be problematic when principals make a professional decision to take a risk and act outside mandatory policy requirements, or it restricts decision-making that may be in the best interest of outcomes for students. To avoid this dilemma the establishment of mandatory policy, applicable to all schools, should be minimized. Where it is created, policy and procedures should be developed that is enabling rather than restrictive. Such an approach would enhance the capacity of schools to make decisions that take account of the unique context of their own students and communities.

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The Development of Preservice Science Teachers' Teaching Assessment Standard Criterion for Supervision

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ABSTRACT

The purpose of this descriptive research is to develop a criterion for evaluating pre-service science teachers' teaching practices based on cooperating teachers and university supervisors' views. The views of cooperating teachers and university supervisors in schools and science teacher preparing institutes in Thailand on pre-service science teachers' teaching practices were collected by questionnaire. The data was analyzed and served as a basis for developing the standard criteria. The meeting was conducted with five experienced cooperating teachers and five university supervisors to modify the standard criterion. The findings showed three aspects of planning instruction, teaching, and learning environment should be included in the standard criterion. In aspect of planning instruction, there were six criteria including understanding about curriculum, content knowledge, teaching strategies/techniques, students learning, learning media and resources and assessment techniques. In aspect of teaching, there were six criteria including effective instruction, meaningful learning, appropriate assessment, effective communication, and effective use of media, resources and technology. The learning environment included care and respect to students, physical environment, motivates student learning, and classroom management. Moreover, the indicators of performances that describe what pre-services science teacher should demonstrate in each criteria are informed. The findings of this study will be used to be a guideline for cooperating teachers and university supervisors for supervising student teachers during field experience.

Keywords: Preservice science teacher, teaching standard criterion, supervision, descriptive research.

INTRODUCTION

A teacher is very important active participant in the school as "the teacher" is a person who plays the crucial role in developing a student in all aspects. Teacher provide substance and arrange activities in line with the learners' interests and aptitudes, bearing in mind individual differences and provide training in thinking process, management, how to face various situations and application of knowledge for obviating and solving problems. However, the studies have shown problems of Thai

teacher quality and quantity (ONEC, 2001). One major finding of the study is that due to the lack of science teachers, teachers who taught other non-science subjects such as Thai language, Mathematics and Social Studies were assigned to teach science. The problem exists that as there are insufficiently knowledge and skilled science teachers and the level of attitudes toward science of teachers was quite low (Silpabanlaeng, et.al, 2006; ONEC, 2001). These are the obstacle in improving the quality of teaching and learning science.

Hence, Ministry of Education, who functioned the contribution a systematic developing and producing process for the teacher with proper qualification as well as standardization of advanced teaching profession through supervising and coordinating the teaching institutions to produce and develop the teacher, changed the policy of teacher preparation by revising the curriculum of teacher production from the 4 year- program to 5 year-program (Office of the Higher Education Commission, 2004). In teacher's curriculum of 5 year-program, student teacher has to spend the time for course work study intensively for 4 years and teaching experience practice in the school for another year. The field experience seems to be an essential component of any teacher preparation programme. It has a significant role in assisting the pre- service teachers gain the expertise and confidence in their teaching. It is not enough simply to place a student teacher in a classroom setting; the supervision is a critical to the development of preservice teachers. Supervising or cooperating teachers are an essential component for developing perservice teachers' practice in science. The supervising and cooperating teacher plays a significant role in the development of the student teachers' skills, knowledge, and attitudes (Karmos & Jacko, 1977; Lowther, 1968). Their role includes the dimensions of model, mentor, provider of feedback, and coach. However, the result of preservice science teacher seminar during field experiences address problems in teaching science effectively, such as planning lessons, organizing instruction, and selecting and using learning media and faced problems in supervising of cooperating teachers and university supervisors (Office of Education Field Experiences, 2001; Roadrangka & Srisukvatananan, 2002).

One of the reasons attributed to the low quality in preservice science teachers' teaching practices was the supervising process that did not lead to fulfill development. For a number of years now, the practical element of pre-service teacher education has been taken in primary and secondary schools under the guidance of cooperating teachers in school, and supervisors in the university department of education. The role of cooperating teacher and supervisors is essentially one of supervising, helping and encouraging the work of the student teacher, and also giving an assessment of their abilities to teach during the practice. However, most of the assessment forms are grading on a four-five scale, simply 'satisfactory' or 'unsatisfactory' sometimes accompanied by a written report. Some of the difficulties inherent in assessment by grading were found. The teaching mark lacks validity, i.e. it does not assess what it purports to assess, it reflects only a strictly limited number of teaching skills rather than the whole range of the student's teaching ability. Assessment by grading is not objectivity; grading depends on cooperating teacher and supervisors' experiences and views. The problem on disagreement between the cooperating teacher and the supervisor was found (Roadrangka & Srisukvatananan, 2002). The cooperating teacher and supervisor should together evaluate the student teacher on the basis of the appropriate standards. Therefore, it is necessary to design the assessment standard criteria to guide cooperating teacher and supervisors.

PURPOSE OF THE STUDY

The purpose of this study is to develop a criterion for evaluating pre-service science teachers' teaching practices based on cooperating teachers and university supervisors' views. This research is not intended to show the level of pre-service science teachers' teaching practices has reached the

criterion; instead it aims to show what criteria and indicators of performances used for evaluating pre-service science teachers' teaching practices are.

RESEARCH DESIGN

We employed descriptive research method to develop a criterion for evaluating pre-service science teachers' teaching practices based on cooperating teachers and university supervisors' views. The research procedure was divided into two phases.

Phase I: Survey views of cooperating teachers and university supervisors in schools and science teacher preparing institutes in Thailand on pre-service science teachers' teaching practices. The questionnaires about pre-service science teachers' teaching practices were distributed to ninety science cooperating teachers in forty five schools and thirty university supervisors in fifteen teacher preparing institutes in Thailand.

Phase II: The data then was analyzed and served as a basis for developing the standard criteria. The meeting was conducted with five experienced cooperating teachers and five university supervisors to modify the standard criterion.

Participants

During October, 2011, ninety science cooperating teachers in forty five schools and thirty university supervisors in fifteen teacher preparing institutes in Thailand were invited to response in a questionnaire items about their practices and views on evaluating pre-service science teachers' teaching practices. Forty-nine science cooperating teachers and supervisors agree to response. Then, five experienced cooperating teachers and five university supervisors were invited to participate in focus group to modify the standard criterion based on cooperating teachers and university supervisors' views.

Data Collection and Analysis

Development of the criterion for evaluating pre-service science teachers' teaching practices was based on the literature and then pilot survey. A review of the literature on preservice performance assessment /teacher candidate evaluation rubric (California Commission on Teacher Credentialing, 2009; The Commonwealth of Massachusetts Department of Education, 2011; Westfield State College, 2011; Wittenberg University, 2011) suggested that there were ten key elements demonstrating effective student teacher performance. The ten elements were plans curriculum and instruction, delivers effective instruction, subject matter, student learning, diverse learner, learning environment, communication, assessment, reflection and professional development, collaboration, ethics, and relationship. Such eight elements were rearranged and grouped into three key categories including planning, teaching and environment. In planning category, four criteria on plans curriculum and instruction, subject matter, student learning, diverse learner were covered. In teaching category, three criteria on delivers effective instruction, communication, and assessment were considered. The learning environment was placed in category of environment. However, two elements on reflection and professional development, collaboration, ethics, and relationship, which not directly involved in teaching practice, were eliminated. In addition, multiple performance indicators of in each criteria derived from literature review were comprised the items on the survey to determine cooperating teachers and university supervisors' practices and views on their supervising experiences on preservice science teachers' teaching.

The survey were composed of 46 items used a rating scale for response. It measured on each of these things 1) how often cooperating teachers/ university supervisors' evaluating preservice science teachers' practices on three aspects of planning, teaching and environment; 2) which performance indicator items cooperating teachers/ university supervisors viewed as the key that should be included in the assessment criteria. In aspect of planning, 16 indicators of performance items under 5 criteria of understands curriculum (2 items), content knowledge (5 items), teaching strategies (3 items), student learning (3 items), and diverse learners (3 items) were included. In aspect of teaching, 22 indicators of performance items under 6 criteria of effective instruction (4 items), organizes meaningful learning (5 items), engages student learning (2 items), uses appropriate assessment (4 items), effective communication (5 items), uses appropriate and uses of media, resources, and technology (2 items) were stated. In aspect of environment, 8 indicators of performance items under 5 criteria of cares, respects and supports learning environment (2 items), manages physical environments effectively (4 items), and facilitates student engagement (2 items).

Developed criteria and performance indicators, based on the literature, was pilot test on ninety science cooperating teachers in forty five schools and thirty university supervisors in fifteen teacher preparing institutes in Thailand in October, 2011. After eliminating surveys with incomplete responses, the data analyzed from this survey involved the perception of 49 experienced cooperating teachers and university supervisors were used as a guideline for revising the criteria. The meeting was conducted with five experienced cooperating teachers and five university supervisors to modify the standard criterion.

RESULTS

Phase I: Survey views of cooperating teachers in schools and university supervisors in science teacher preparing institutes in Thailand on pre-service science teachers' teaching practices.

The initial survey was distributed to 90 science cooperating teachers in 45 schools and 30 university supervisors in 15 teacher preparing institutes, of which 49 complete responses received from 40 science cooperating teachers and nine university supervisors. The following are key descriptors of the participants and their mentors.

The majority of cooperating teachers and university supervisors reported that they incorporated all 46 survey items covered three aspects of planning, teaching and environment when assessed pre-service science teachers' teaching practices. However, there were some items in all three aspects that were not often incorporated in an assessment and views as the performances that should not be included in this assessment.

In aspect of planning, seven items emphasizing on subject matter, student learning and diverse learners were not assessed often. The seven items are:

Subject Matter 1) *Understands and teaches the connections of the discipline with other discipline and with everyday life.*

Student Learning 1) *plans lesson relevant to aspects of students' base knowledge and experiences*
 2) *plans lesson relevant to student learning and development*
 3) *provides learning opportunities that support a student's intellectual, social, and personal growth*

Diverse Learners 1) *demonstrates students' cultural, ethnic, and experiential*

backgrounds

2) demonstrates student differences in learning capabilities and approaches

3) provides learning opportunities that are adapted for students with diverse background

The experienced cooperating teachers and university supervisors also reported that items 1) and 2) in aspect of diverse learner should not be included in the assessment.

In aspect of teaching, five items emphasizing on organizes meaningful learning, engages student learning, and uses appropriate assessment were not assessed often. These five items are:

organizes meaningful learning *1) uses activities and materials that meet the learning needs of all students.*

2) provides opportunities for students to practice and apply learning to promote understanding

engage student learning

1) Provides challenge tasks and independent learning

use appropriate assessment

1) monitors student understanding during instruction and makes adjustments to the lesson to promote learning

2) uses several kinds of assessment methods to obtain information about student performance

3) provides adequate and useful feedback for informing and/or redirecting student learning

4) conducts assessments and provides feedback on a systematic and timely basis

The experienced cooperating teachers and university supervisors also reported that two items (1 and 4) in aspect of use appropriate assessment showed above and two items in effective communication, including displays effective use of voice to achieve different purposes and use effective communication techniques to attach student interests should not be included in the assessment.

In aspect of environment, two items on engages student learning in group and individual and engages student social interaction to construct knowledge were not assessed often and viewed as performance that should not be included in the assessment. In addition, creates a physical environment appropriate to a range of learning activities and takes care classroom environment, provides appropriate media and materials accessible to all students were also views as the performances that should not be included in the assessment.

Phase II: development of a criterion to evaluate pre-service science teachers' teaching practices

The following criteria and indicators of performances were developed based on the consideration, but not follow completely, on the result of focus group interview with five experienced cooperating teachers and five university supervisors. The three aspects of planning instruction, teaching, and learning environment were included in the standard criterion. In aspect of planning instruction, there were six criteria including understanding about curriculum, content knowledge, teaching strategies/techniques, students learning, learning media and resources and assessment techniques. Moreover, the indicators of performances that describe what pre-services science teacher should demonstrate in each criteria are informed as following:

Table 1. *Criteria and Indicators of Performance in aspect of planning*

Criteria	Indicators of performances
1. Understands the curriculum	<ul style="list-style-type: none"> - Plans lesson goals that are clear, relate to academic content standards and content to be taught - Plans lesson goals that cover three domains that can be observed and measured - Plans lesson that aligns goals, content, activities, and evaluation
2. Understands content knowledge	<ul style="list-style-type: none"> - Plans lesson demonstrate central concepts, skills, and basic vocabulary that related to lesson goals and content standard - Plans lesson that are accurate in content and clearly represent subject matter content - Understands about nature of science and plan lesson that provide opportunities for students to use process of investigation in science - Understands and connects content to be taught to everyday lives
3. Understands teaching strategies/techniques	<ul style="list-style-type: none"> - Selects teaching methods, activities and materials appropriate for students and content - Plans lesson method emphasizing student-centered and knowledge construction
4. Understands student learning	<ul style="list-style-type: none"> - Plans lesson that recognize the interests, abilities, needs, prior knowledge and experiences of group and individual students - Plans lesson that varied use of differentiated instruction techniques to meet student differences - Plans lesson that provide learning opportunity to select learning activity based on individual and group interests
5. Prepare media, materials and resources	<ul style="list-style-type: none"> - Selects appropriate media, materials that are aligned with subject matter, learning activities and student abilities - Plans lesson using appropriate and multiple resources - Selects media, materials and resources relevant to local
6. Understands assessment methods	<ul style="list-style-type: none"> - Plans lesson using assessment methods that are relate to three domains, including knowledge, process, and attitude - Uses several and practical assessment methods - Uses authentic assessment method that appropriate to what they want to assess - Uses assessment method based on individual difference

Aspect II: Instruction

In aspect of teaching, there were six criteria including effective instruction, meaningful learning, appropriate assessment, effective communication, and effective use of media, resources and technology. Moreover, the indicators of performances that describe what pre-services science teacher should demonstrate in each criteria are informed as following:

Table 2. *Criteria and Indicators of Performance in aspect of instruction*

Criteria	Indicators of performances
1. Delivers Effective instruction	<p>Introduction</p> <ul style="list-style-type: none"> - Encourages student interest that relate to content and not explain key words to be taught - Elicits student prior knowledge/basic concept that align with subject matter being taught and then stimulates classroom discussion

Criteria	Indicators of performances
	<ul style="list-style-type: none"> - Asks question that connect student prior knowledge/interest to learning activities <p>Teaching</p> <ul style="list-style-type: none"> - Makes connection between student prior knowledge/ interest and learning activity - Asks questions to discuss clearly on purpose, procedure, materials, data to be recorded - Engages students to do hands-on activities usin process of investigation in science - Asks question to stimulate thinking and participating in classroom discussion to conclude key concept <p>Conclusion</p> <ul style="list-style-type: none"> - Provides opportunities for students to construct knowledge by themselves - Uses questioning or other assessment techniques to assess student learning
2. Organizes meaningful learning	<ul style="list-style-type: none"> - Uses varied activities and materials that meet the learning of all students - Provides opportunities for students to practice and apply learning to promote understanding in deeper and real-life contexts - Teacher effectively combine independent, cooperative, and whole class organization strategies to maximize student understanding and learning
3. Use appropriate assessment	<ul style="list-style-type: none"> - Monitors student understanding during instruction and makes adjustments to the lesson to promote learning - Uses several kinds of assessment methods to assess knowledge, skills and attitude during instruction - Provides feedback immediately for informing and/or redirecting student learning
4. Effective communication	<ul style="list-style-type: none"> - Displays effective use of voice - Displays clear and meaningful language and appropriate to student age - Displays correct use of oral and written language including correct use of vocabulary related to content being taught - Listens to student answers both correct and incorrect and then stimulates discussion - Displays appropriate waiting time
5. Appropriate and effective use of media, resources, and technology	<ul style="list-style-type: none"> - Selects and uses several and creative media, materials, and technology to support student learning - Uses accurate media, materials and technology
6. Time management	<ul style="list-style-type: none"> - Uses appropriate time with content and learning activities - Uses instructional time productively and effectively

Aspect III: learning environment

The learning environment included care and respect to students, physical environment, motivates student learning, and classroom management. Moreover, the indicators of performances that describe what pre-services science teacher should demonstrate in each criteria are informed as following:

Table 3. Criteria and Indicators of Performance in aspect of learning environment

Criteria	Performance indicators
1. Caring, respectful and supportive learning environment	<ul style="list-style-type: none"> - Uses speech and body language with respect and care and honors their differences - Creates a climate that promotes fairness and positive social interaction - Creates safety climate in sharing ideas and not ignore or reject student incorrect answers
2. Manages physical environments effectively	<ul style="list-style-type: none"> - organizes physical environments to support instructional activities - manage clean, lighten, and quiet classroom environment - Takes care classroom environment, provide appropriate media and materials accessible to all student
3. Motivates student engagement	<ul style="list-style-type: none"> - engages student learning in group and individual - engages student social interaction to construct knowledge - uses appropriate positive and negative supports to promote student learning
4. Uses classroom management techniques	<ul style="list-style-type: none"> - uses a variety of classroom management techniques - shows instant problem solving

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

A number of recommendations are derived from the findings of this study. First, this study suggests that the developed assessment criterion can be used as guideline for cooperating teacher and supervisor together evaluating the student teacher. However, in addition to list of criteria and indicators of performance, evaluation rubric should be developed and aligned with professional standard that is used to assess the professional performance of in-service teachers.

Secondly, during the field experiences, the student teacher's achievement on the assessment criterion standards will be normally assessed by classroom observations of cooperating teacher and university supervisors. The sources of evidence to assess a student teacher's field experience performance may include but are not limited to the following: lesson plans, portfolios, examples of students' work, reflective paper and observable behaviors.

Finally, future research could investigate the development of pre-service science teachers' teaching practices using the assessment criterion as an assessment tool for providing feedback from cooperating teachers and university supervisor and pre-service science teachers' self-assessment to fulfill development in pedagogical knowledge and skills.

CONCLUSION

The Professional Standards for Teachers define the pedagogical and other professional knowledge and skills required for all teachers. These standards are used by teacher preparation providers in preparing their candidates, and by the Department as the basis of performance assessments of candidates. Candidates shall demonstrate that they meet the Professional Standards by passing a performance assessment during field experiences because field experiences regarded as the capstone experience of a science teacher preparation program. However, there are no assessment standard criteria for preservice teacher that aligned with professional standards in Thailand. Hence,

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this research aimed to develop a criterion for evaluating pre-service science teachers' teaching practices based on cooperating teachers and university supervisors' views.

As the result gained from survey study and focus group interview with experienced cooperating teachers and supervisors, it enables student teachers to demonstrate competencies acquired during field experiences in following aspects: planning instruction, teaching, and learning environment. The cooperating teacher and university supervisors must assess student teacher using the preservice performance assessment criteria included with the following:

1. criteria as listed for each aspect
2. indicators of performances as listed for each criteria

In aspect of planning instruction, there were six criteria including understanding about curriculum, content knowledge, teaching strategies/techniques, students learning, learning media and resources and assessment techniques. In aspect of teaching, there were six criteria including effective instruction, meaningful learning, appropriate assessment, effective communication, and effective use of media, resources and technology. The learning environment included caring and respectful to students, physical environment, motivated student learning, and classroom management. Moreover, the indicators of performances that describe what pre-services science teacher should demonstrate in each criteria are informed in Table II-III shown above.

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Social Identities in Second Language Talk: A Conversation Analytic Research Perspective

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ABSTRACT

This paper first discusses how social identities can be considered through the research method of Conversation Analysis and then introduces our study showing the various identities second language learners locally invoke in order to construct social identities in their classroom tasks. The data come from a set of six 60-minute group discussions in English-as-a-foreign-language classrooms in a Japanese university. The analysis showed that during the discussions the participants were demonstrably oriented to various aspects of their identities, such as (a) being a discussant, (b) being a student in a language learning task, (c) being a second language speaker, (d) being an English language learner, and (e) being a member of Japanese culture. Overwhelmingly, the discussants demonstrated their orientations to the contextually bound identities of the discussion task itself. However occasionally, social structural identities such as student, second language speaker, English language learner, member of Japanese culture, and so forth were made relevant and consequential in the talk. We conclude by observing that Conversation Analysis provides an innovative research method applicable to educational contexts.

Keywords: Social identities, second language, conversation analysis.

INTRODUCTION

This paper is concerned with how social identities are considered through the research method of Conversation Analysis and demonstrates how this method can be applied to analysis of interaction in an educational context. Through application of the method the analysis reveals the various identities second language learners themselves orient to during their classroom tasks.

Ever since Sacks (1972a, 1972b) introduced research concerning how and when social identities become relevant in interaction, the body of literature has grown considerably (e.g., Antaki & Widdicombe, 1998; Schegloff, 2007a). Conversation analysts and ethno methodologists have examined the participants' practice of making relevant a variety of identities such as gender (Eglin, 2002), family relationships (Butler & Fitzgerald, 2010), cultural identities (Mori, 2003; Nishizaka, 1995), international identities (Hougaard, 2008), and various social roles within institutions (Richards, 2006; Zimmerman, 1998). Following Schegloff (2007a), we demonstrate how interactants

were oriented to various identities in producing and understanding talk. Specifically, our study shows that although the interactants' orientation to reach a particular institutional goal was almost always relevant during the discussion, their orientation to identities of their own and others were not monolithic. That is, the oriented-to identities emerged from a dynamic and live interactional process that was shaped by on-going interaction. On top of doing being "task completers," the participants were oriented to various identities and they frequently shifted their public orientation to different aspects of their own identities within a single conversation in the course of jointly constructing the task interaction.

BACKGROUND

Conventionally, in many research paradigms, identities were seen as a fixed, stable construct and they were used to categorize the social world and to make comments on the categories. For example, in sociolinguistics, researchers have traditionally employed structuralist-functionalist theories of societies and focused on finding correlations between social constructs (social class, ethnicity, gender, etc.) and linguistic performance (e.g., Mendoza-Denton, 2002). In these studies, interlocutors' linguistic performance was treated as marking their stable identities. Similarly, in the field of second language acquisition, researchers appropriated Chomsky's identification of an idealized native speaker competence as the proper object of grammar, and even with the expansion of competence from grammatical to communicative competence (e.g., Canale & Swain, 1980). Researchers did little to challenge the identification of native speaker competence. Thus, the identities of "native speakers" and "non-native speakers" were seen as fixed or innate constructs. However, increasingly, objections to such exogenous imposition of identities have been raised. An alternative and innovative method of examining identities, most typically found in studies of Conversation Analysis and Ethnomethodology, is the one that guides us to examine whether the participants' characterizations are indeed grounded in the analysis of what the participants themselves are doing and orienting to at that moment (e.g., Schegloff, 1992; 2007a). In this view, the identities or characterizations of participants are treated as endogenous and dynamic processes negotiated by the participants in the interaction. Studies that take this view have shown that identities demonstrably relevant to the participants can change dynamically during the interaction of single occasions. That is to say, a participant orients to one aspect of who they are at one moment of interaction and orients to another aspect of who they are at another moment. For example, participants' orientation to expert/novice identities shift within one activity, both in first language interaction among professionals (Jacoby & Gonzales, 1991) and in second language interaction in and out of classrooms (Aline & Hosoda, 2009; Hosoda, 2006; Kasper, 2004; Ohta, 2001).

Our study applies the conversation analytic method and describes the various social identities second language learners themselves invoke and orient to during classroom tasks.

THE STUDY

Data

The data come from a set of six 60-minute video-recorded small group discussions among first and second year Japanese university students in English as a foreign language classes. The students carried out the task of choosing which person among five fictitious candidates should be hired as a

teacher. All extracts presented are transcribed using common Conversation Analysis conventions (Schegloff, 2007b). Extract (1) exemplifies typical interaction observed in the discussions.

Here, Yuka, Maki, Aki, and Nori are in one discussion group and Gota is from another group in the same room.

(1) [G3 1:07:26]

01 Yuka: I think so. next is Maki.

02 Maki: I think that num-ber two: is Ja[mes Fowler.]

03 Gota: [gkh gkh] ((coughing))

04 (1.0)

05 Maki: °e::° James is- he is- (.) works in o::ne

06 high school fer long time, °uh:: twenty two

07 years, ° a:nd he:: (1.4) he:: ha:s three

08 children. (0.5) he::

09 Gota: [gkh gkh

10 Maki: he interested °in° elementary education.

11 (0.5)

12 Maki: that's all.

13 (0.5)

14 Nori: Aki

15 Aki: I think number two: is Barbara

In this extract, many features that characterize this particular institutional context can be observed, and the participants demonstrably orient to the context through these features. The most obvious feature of this discussion data is the participants' language choice: The discussion participants carried out the task mostly in English, while the same participants always spoke in Japanese outside the classroom.

Another noticeable feature is the turn-taking system which departs substantially from ordinary conversation. In ordinary conversation, participants jointly orient to production of one turn constructional unit (TCU) at a time and speakers deploy a range of techniques to construct multi-unit turns. However, in the present data, as seen in Maki's turn in lines 2 to 12, speakers commonly produced multi-unit turns while others listened quietly until the official end of the speakers' argument (Maki in line 12) without need to deploy further techniques.

The lexical choices they made also characterize this setting. Participants often used "I think" to begin their argument (Maki in line 2 and Aki in line 15 in Extract 1), "that's all" to end their argument (Maki in line 12), and "next is (speaker's name)" or "How about you" to select next speaker (Yuka in line 1). The typical turn design they used was to first to state their choice from among the candidates (line 2), followed by an account for their choice (lines 5 to 10), and then an announcement of the end of their argument (line 12).

Moreover, the overall structure of the discussions reveals their orientation to the context. All groups began their discussion with each participant stating their opinions in turn and ended with the members reaching agreement and writing down their choices on the handout. To summarize, the interactants oriented to the particular goal of the task, which was to choose the most appropriate person for the teaching position. This orientation to their identities as "task completers" was almost always seen to be relevant to the participants themselves. Having this consistent orientation underneath, as we introduce next, is revealed through their orientation to varieties of task-relevant identities during the discussions.

Orientation to various identities

Being a member of a hiring committees

As the task required the participants to choose the most appropriate candidate for the teaching position, the participants constantly assumed the role of and thus constructed their identities as members of the hiring committee. In (2), Rika displays such an identity.

(2) [G1:01:11-22]

01 Eita: but °I (.) like (.) him. ° how about you.

02 Rika: uh:: I I recommend, (.) Barbara Carrera, (.) beca:use

03 he: she sa:ys I love to teach elementary school and have

04 (situation to do with) childġ and she has four children

05 so: she must be professional of children, so: she is

06 (.) she: is (.) sui:t for? teacher. °(teacher job) °

07 Kiku: how about you.

08 Taro: uh::: I think...

Rika's turn from lines 2 to 6 demonstrates her orientation to doing being a member of the hiring committee in many respects. First, her production of "I recommend" followed by one candidate name shows that she is oriented to being in the position of choosing a candidate. Second, in producing an account for her choice, she includes why the person she chose is appropriate for the teaching position. Furthermore, Rika uses the worksheet to ground her argument during her turn in a way similar to that used in workplace meetings.

The following extract also demonstrates participant's orientation to doing being a hiring committee member.

(3) [G5:16:10-17:34]

01 Hiro: (okay) I:: I think uh: I- I'm, I don't wantt to (.) hire::

02 (.)Judithu (.) Jonesu ((reads name from worksheet))

03 Mami: mm ((nods))

04 Hiro: .hh uh (that uh) he will (.) enfo:rce (.) religion

05 to (.) children. (.5) °uh° (.)

06 () butu (.) (). ((checks dictionary))

- 07 Takako: mm ((nods head, looks to M))
 08 (4.0) ((H mumbling))
 09 Hiro: (andu) he must (.8) () children. ()
 ((reading from handout))
 10 °°n°°
 11 (2.2)
 12 hm: (.) and (.) I can't hire (0.8)
 13 (she).=him, he
 14 (0.5)
 15 Mami: s[he ((head comes up, looks at T))
 16 Hiro: [he sh[e
 17 Mami: [she
 18 Takako: she?
 19 Hiro: she, un. I can't hire he::r.

In line 1, Hiro establishes his identity as a member of a discussion task when he projects an extended turn with "I think", and produces an opinion as to a candidate he rejects with "I don't want to (.) hire:: (.) Judithu (.) Jonesu", indexing his membership in the hiring committee lexically with "hire." His position as a member with rights to hire is validated through Mami's receipt token and head nod. He then provides an account for his position by reading from the worksheet. At this point, he orients to a second language speaker identity as he looks up a word in his dictionary, then reorients to committee member identity as he moves to conclude his argument by framing it with the same committee oriented phrase "I can't hire". He then closes his projected multiple turn by deploying the same phrase "I can't hire he::r.", the phrase that demonstrates his orientation to doing being a member of a hiring committee.

Being a Task Performer

An identity that the interactants oriented to that is directly related to the task is doing being a performer of the task. In (4), Eita orients to himself and others as people who are working on this particular task.

- (4) [G1:01:01-11]
 01 Eita: uh↓::: (.)uh↓::: (.)uh↓::: I liku::: (.)
 02 ((tapping fingers on worksheet)) uh↓:::
 03 ((tapping fingers on worksheet)) the: la:st one
 04 the la:st o:ne: Judi:s::: (.) Jo:nes I: (.) the
 05 teacher must be stro:ng in the classroom. sentence.
 06 ((taps hand on worksheet, looks up))
 07 uh::: po- probably he:: tch he's: notto:

- 08 (.) popular:: ((looking around the class, circling
09 hands)) them uh::: popular: (.) there::: the- popular:
10 in us,
11 Rika: us.
12 Eita: but °I (.) like (.) him. °

In line 1, Eita launches his turn with uh::s and expresses his preference by saying "I like." He holds his turn and attracts the other participants' attention by tapping his fingers on the handout (line 2). He mentions the name of a candidate he is going to talk about and then reads the candidate's statement from the document. He then expresses, in lines 7 to 10, his concern that this particular candidate might not be the first choice of other members. He states, "po- probably he:: tch he's: notto:(.) popular:: them uh::: popular: (.) there::: the- popular:in us," while looking around the classroom and indicating through gesture everybody in the room. "Us" in his utterance nonverbally indicates everybody including himself, and specifically everybody who is now working on the task that requires them to choose their favorite candidate. Therefore, in uttering this turn, Eita verbally and nonverbally orients to this immediate context in which everybody in the room is assigned to perform this particular task. In line 11, Rika acknowledges Eita's opinion by repeating "us", and Eita then expresses his opinion that he still likes the candidate.

Being a second language user and being Japanese

As the participants are all Japanese students who always speak Japanese outside the classroom, in carrying out the discussions in English, the participants were occasionally oriented to doing being second language speakers. In (5), Tomo orients to using a second language by requesting assistance from the other participants in Japanese and looking up lexical items in a dictionary.

- (5) [G5:06:18-24]
01 Tomo: uh: I thi:nk thato (uhmm) >but< butto (.)
02 in my (opinion) (.) ((reading)) she has small children
03 so she may have a childo (.) in the future. (.)
04 hn so (.) so: she: may be (.)
05 °sankyuu° ((whispers request for help to M))
 "maternity leave"
06 Miki: °uh° ((nods head))
07 Tomo: °nan dakke°
 "what is it?"
08 (1.0) ((reaches for dictionary))
09 Tomo: hh °chotto matte°
 "just a minute"
10 (3.5) ((consults dictionary))
11 Tomo: maternily leave ((maternity leave))

12 Miki: °u:n°

13 Tomo: °un°

In line 1, Tomo initiates her turn with "I think", and produces ">but< butto", indicating she will argue against the candidate. In the midst of stating her opinion, after she utters "so: she: may be", at the point of maximal grammatical control, she pauses and asks for Miki's help, whispering in Japanese "*sankyuu*" (maternity leave). Miki acknowledges the request with a short whispered token "uh" and a head nod. Tomo then produces in Japanese "*nan dakke*" (what is it) and "*chotto matte*" (just a minute) in a quiet voice and looks in her dictionary. After finding the searched-for item, she produces "maternity leave" (maternity leave), which Miki acknowledges. Following the other members' acceptance, the interaction returns to the main sequence in English. In this extract, Tomo orients to her being a second language user in several ways. First, by using Japanese to ask her peer for help, to mark her trouble in coming up with a word, and to hold her turn, Tomo demonstrates that Japanese is the code that is more accessible to her than English, and she also shows that the others in the interaction are Japanese language speakers as well. Second, by looking up a word in the dictionary to search for an English lexical item, she orients to doing being a second language user. Finally, by producing the word search sequences in a quiet voice, Tomo marks that her argument-in-progress is temporarily being suspended and what she is doing now is a conversational parenthesis, which is off the main discussion sequence. By producing this side sequence in Japanese, she demonstrates her switch of roles from "a discussant" to "a Japanese language speaker."

As shown in (5), participant identities as a second language speaker and as a Japanese language speaker are occasionally brought into being in and through the interaction. Similarly, in (6), Eita's identity as a Japanese is invoked in his talk.

(6) [G1:18:10-19:06]

01 Kiku: I have a question.

02 (.)

03 Kiku: how do teachers (.) help their students how religion

04 (.) is very important.

05 (0.3)

06 Kiku: how.

07 (.)

08 Kiku: what way.

09 Eita: .shhhh tch religion. *shuha*. (2.5) °tell the
"religion"

10 students how religion is very important° .hh .shhh

11 uh::: .shhh I like (.) thato: ()students

12 uh::: religion is ((throat clearing)) uh:::

13 many Americansu (.) like:: (.) the way (.) of14 thinking to:: .shhhh (3.0) tch (1.0) *koko ni gaikokujin ga*15 *mou hitori itara mou chitto eigo de shaberu mochibation*

16 *mo agaru n darou k(h)e[d(h)onehhuh*

"if there is one gaikokujin (foreigner) here, my motivation
to speak English would go up but,"

17 Taro: [mhhuhhuhuhuh

18 Rika: this opinion? shrink? shrunked? shrunked students'

19 idea and mind? (.) so::: °shrunked°

Prior to this extract, Eita was arguing in favor of one of the candidates (Extracts (4) and (8)). In line 1, Kiku looks at Eita and proffers a pre-question with "I have a question." Although there is no verbal response from Eita, in line 2 he turns to look at Kiku. Kiku then produces a question that formulates a challenge to what Eita argued for. As there is no response from Eita in line 5, Kiku pursues Eita's response in lines 6 and 8. Eita then responds in line 9. He first takes a deep in-breath and repeats one of the words in Kiku's question. After a pause, he reads a part of the candidate's statement from the worksheet in a quiet voice. He attempts to state his position but faces trouble expressing himself as indicated by pre-pausals (uh::'s), pauses, sound stretches, and throat clearing (Hosoda & Aline, 2012). It is also noticeable that when he stretches a word "thato::" (line 11) to delay the next item due, he employs what Carroll (2005) calls "vowel-marking," which is typical among (novice) Japanese speakers of English as a second language engaged in talk with other Japanese speakers of English. This vowel-marking not only reveals his identity as Japanese but also demonstrates his orientation to talking to Japanese peers. After he produces "many Americans like the way of thinking to" and takes a deep in-breath, he pauses and makes a sound of frustration "tch" and pauses again. The local interactional context shows that at this point he needs to defend his position against Kiku's challenge, and at the more proximate level, he needs to express Americans' way of thinking. It is exactly at this moment that he stops producing his opinion and switches to Japanese. By stopping at this moment, he demonstrates that he does not have easy access to American's way of thinking. Moreover, he singles out the fact there is no *gaikokujin* (foreigner) in the group. Formulating talk by mentioning something absent is one way of doing a possible complaint (Schegloff, 1988, 2006). By mentioning *gaikokujin*, he invokes a standardized relational pair of "*gaikokujin* (foreigner) versus *nihonjin* (Japanese)" that Japanese people commonly employ (Suzuki, 2009). Therefore, he mobilizes the identity of Japanese and ascribes the identity to himself and others. Furthermore, the fact that this utterance is produced in the Japanese language also reveals his present orientation to himself and others as being speakers of Japanese. He produces the end of his turn with laughter tokens that mark non-seriousness, and it invites Taro's shared laughter. However, other than Taro's brief laughter, Eita's complaint does not receive any response, and in line 18, Rika refuses to align with the Japanese identity Eita oriented to by expressing her opinion in English, and the interaction moves forward.

Being an outsider of Western culture

As demonstrated in the prior extracts, the participants' momentary orientation to being second language speakers and Japanese language speakers were mobilized in their talk. Similarly, the participants were occasionally oriented to discussing something about foreign culture during the discussion. Consider (7).

(7) [G6:03:12-03:23]

01 Mari: (mm) I- (0.8) I thi:nk uh:m (1.0) the best

02 (.) most t- best teacher i:su: (.)

- 03 Ja- John (.) Jefferson.
04 Yuki: °John Jefferson°
05 Mari: °Jefferson° (0.5) he- he or she.
06 (.)
07 Keisuke: [Jefferson John he
08 Yuki: [John he (*desu ne*)
 "isn't it?"
09 Mari: he. (.) uh:m (1.0) he is (1.) wh- (.)
10 aged is forty two (.) becau:se (0.8)
11 yea uh::: (1.0) mos- (.) he have most
12 experience

Mari opens her extended turn with the – for this discussion task – usual opinion statement of "I thi:nk" and then provides the name of the candidate who is her first choice, highlighting her role as a discussion task member and projecting an extended turn. In line 2, she projects some trouble ahead with a sound stretch and vowel-marking. As noted above, vowel-marking indexes an identity of a Japanese novice speaker of English speaking to other Japanese. The vowel-marking, pause, and cutoff of the initial syllable of the candidate's name indicates possible trouble with the name. The name is given with a pause between the first and last names, and additional stress on vowels in the family name. Mari's statement of the candidate's name is then repeated in a quiet voice by Yuki, indicating acceptance of this person as a topic and validating Mari's projected multi-unit turn. Mari, in line 5, repeats the family name "Jefferson" with quiet voice and a pause. She then begins what appears to be a new turn constructional unit, but cuts it off, indicating a repairable. Subsequently she questions the gender proform for this candidate's name "he or she.", possibly mistaking the family name for the first name as these are inverted in Japanese. Her question is directed through gaze to Yuki, sitting across the table and to Mari's left. Keisuke, sitting straight across from Mari, supplies an answer by inverting the name and adding the gender proform. In overlap, Yuki provides the name indicative of gender, the first name, adds the proform, and tags it in Japanese with "*desu ne* (isn't it)". Mari then recycles the cutoff proform from line 5 and continues her projected multi-unit turn.

When Maki asks about the gender proform, the question occurs immediately following her production of "Jefferson" with low amplitude, making the question hearable as relating to this part of the name. This is how Keisuke hears it as he inverts the name and places the gender proform contiguous to the part that receives gender marking. Maki's question indicates a lack of knowledge not of grammatical form but of the correct gender for a common name in Western culture, putting herself in the category of a person who is outside Western culture. Keisuke, in line 7, notes this identity orientation in that he responds with the Japanese order of names – family name first, first name last – and supplies an answer with the male gender proform "he". In complete overlap with Keisuke, Yuki provides an answer by producing the first name only and the gender preform. She then orients to a Japanese identity by marking it with the Japanese phrase "*desu ne*" (isn't it).

As seen in (7), participants' orientation to discussing something in a foreign culture is often exhibited in their talk. Thus, when one member asserted something about a foreign culture, the other members questioned and/or modified the assertion, as shown in (8)

(8) [G1:16:07-17:19]

- 01 Kiku: I- I think uh::: about your opinion¿ Jo- Judith
02 Jones.
03 Taro: un.
04 Kiku: is wo:rst teacher. (.) here 'ca:use >'cause
05 'cause< why regi- religion is important in .hhhh
06 Eita: a:↓:[:
07 Taro: [I'm also [this
08 Eita: [.shhh
09 Taro: sorry hehh hehh
10 Eita: e:::: I think many people choose u::n .hhhh tch
11 .hhhhh but right here uh: American schools uh::::
12 notto in peaceful uh:::: dangerous (.) school.
13 Taro: a::::
14 Eita: in America.
15 Kiku: but haven't
16 Eita: e::::
17 Taro: how do you know. so .shhh [uh:: American
18 Eita: [high school
19 Taro: uh:::: so:: student (.) so:: (.)uh::: carry a gun?
20 or:: .shhh someti:me:: uh::: (1.0) .shhh °ano° uh I
21 don't know I- (.) I don't know but uh::: sometimes uh::
22 so TV news said, so:: uh::: very sad news,(0.5)uh:[:
23 Gota: [gkh
24 gkh (.) gkh gkh ((coughinf))
25 Taro: unbelievable news,
26 (0.8)
27 Eita: teachers can have ((clear throat)) guns. uh::: in law
28 (0.5)uh::: (0.5) [(American school) teachersu can have
29 guns.
30 Taro: [(just any-)
31 Eita: e:: uh::: legally
32 (0.4)

33 Taro: to save (.) themselves?

34 Eita: yes.

35 (1.2)

This segment occurs between Extracts (4) and (6). Eita argued for one candidate (Extract 4), and in this extract Kiku initiates a sequence regarding his choice. In line 1, Kiku's pre-question in line 1 tacitly selects Eita to be the recipient of her question by naming the candidate of Eita's choice. In line 4, Kiku explicitly disagrees with Eita by producing a negative evaluation of the candidate "wo:rst teacher" and questions one part of the candidate's statement "religion is important." In line 6, Eita displays recognition of the question. While Eita produces "a:↓:::", Taro aligns with Kiku's question "I'm also this". However, as Eita shows he is continuing his turn with a deep in-breath ".shhh", Taro stops his utterance and apologizes for his interruption. Eita then begins answering Kiku's question with the assertion that American schools are not peaceful but dangerous. In line 13, Taro acknowledges Eita's assertion producing "a:::::" and Eita then adds an increment "in America" in line 14. Kiku's production starting with "but" is likely to be a disagreement with Eita's response, but Eita shows he is continuing his response by producing "e:::::" in line 16. However, before Eita produces his continuation of the response, Taro questions Eita, "how do you know." This question demonstrates his doubt about the reliability of Eita's assertion. As Eita attempts to answer Taro's question, it results in overlap in line 18. In line 19, Taro continues his turn. Here, although Taro supports Eita's comment that students carry guns (in America), he reveals his orientation to the fact that they are discussing something about a foreign culture. He indicates his uncertainty of his own statement with non-lexical perturbations (e.g., uh::), pauses, sound stretches, and cut-offs. Repeated production of "I don't know" also evinces his uncertainty. Furthermore, he reports that he hears such "unbelievable news" from "TV news". This utterance indicates not only that Taro does not have a direct access to the news or incidents but also demonstrates his orientation to discussing something that is foreign to him. Thus, Taro's turn is carefully designed as a supporting argument with adjustment of epistemic stance. As shown, when one member of the discussion group asserts something about American culture, the setting of the task, the other members of the group expressed their doubts about the reliability and/or downgraded their epistemic stance toward the information.

CONCLUSION

This paper demonstrates that Conversation Analysis provides an innovative research method for observing second language learners' identities in educational contexts. Our study found that participants' orientation to reach a particular institutional goal, which is to complete the task of choosing the most appropriate person for the teaching position, was almost always relevant during the discussion. However, it also shows that just because the participants interacted in classroom contexts, it does not mean that they were consistently oriented to task completion. Although they constantly oriented to their identities as "task completers," they also oriented to other identities, and their orientation to identities of their own and others were not monolithic. On top of doing being "task completers," the participants oriented to various task-relevant identities, and they frequently shifted their public orientation to different aspects of their own identities, such as a being a member of a hiring committee, being a task performer, being a second language user, being Japanese, and being an outsider of Western culture. These identities were observable in their talk and were consequential for the trajectories of the interaction. Moreover, the participants' orientation to these various identities within a single conversation empirically demonstrates that

identities relevant to interactants are not concrete but can change dynamically on a moment-by-moment basis. This way of considering social identities as a dynamic and locally constituted process can be alternative to research methods that determine identities as exogenous, *a priori* constructs.

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APPENDIX

Transcription Conventions for the Analysis of Conversation

Transcription Conventions

- [] overlapping talk
 = latched utterances
 (0.0) timed pause (in seconds)
 (.) a short pause
 co:lon extension of the sound or syllable
 co::lon a more prolonged stretch
 . fall in intonation (final)
 , continuing intonation (non-final)
 ? rising intonation (final)
 ĥ intonation between continuing intonation and rising
 intonation
 CAPITAL loud talk
underline emphasis
 ↑ sharp rise
 ↓ sharp fall
 ° ° quiet talk
 < > slow talk
 > < fast talk
 hh audible aspirations

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.hh audible inhalations

(hh) laughter within a word

(()) comment by the transcriber

() problematic hearing that the transcriber is not certain about

Social Support to International Tertiary Students in an Australian Regional Area

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ABSTRACT

Cultural transition leads to acculturative stress which causes huge pressure for international students transferring into the new environment. In order to release their pressure and enhance their psychological and social wellbeing, a system of social support should be established to help them to adapt to the new environment. In this study, a total of 20 international students and 5 university staff were recruited to participate in the semi-structured interviews and give their understanding of social support system in a regional area in Australia. Four important sources of social support were identified in this study: family, friend, university and community. Due to different functional characteristics, each source plays distinct roles in assisting international students. Evaluation to these sources of social support was also discussed in this study.

Keywords: Social support, international students, family support, peer support, tertiary education.

BACKGROUND

As the fourth largest international students receiving country, Australia, due to its high education reputation and advanced educational systems, has become one of the popular destinations for most international students in the world. According to Australian Education International (AEI) (2010a), there were 631,935 enrolments by full-fee paying international students in Australia on student visas in 2009, which represented a growth of 16.8% on 2008 enrolments. Among these international students, 203,324 (32.2%) students were taken in High Education, which increased by 12.1% between 2008 and 2009. AEI's (2010b) statistics also showed that 56.2% of higher education enrolments were undergraduate study. Among the postgraduate enrolments, 80.0% were at the Master's level, and another 11.5% were Doctoral degrees.

As transferring from a familiar environment to another that is little known, most international students' minds and bodies more or less have changes to the new environment. Thus, they are commonly regarded as a group of people who are susceptible to various physical illness (e.g. insomnia, frequent minor illness, upset stomach and/or headache) and psychological problems (e.g. loneliness, homesickness, anxiety, and depression) (Axelson, 1993; Bock, 2008; Sandhu, 1995; Sandhu & Asrabadi, 1994; Winkelman, 1994).

Social support can be defined as the availability of caring persons who can be relied on for assistance at the time of stress (Sarason, Sarason, & Pierce, 1990). Due to the geographical distance from the family and cultural differences, international students have fewer opportunities to access their family and establish interdependent networks compared with local students (Khawaja & Dempsey, 2008). A number of research works (Crockett et al., 2007; Lee, Koeske, & Sales, 2004) have found that social support, in the form of practical assistance has a stress-buffering effect for international students, including their acculturative stress, depressive symptoms, reactions to stressors and life satisfaction, etc. Other studies (Jou & Fukada, 1995; Misra, Crist, & Burant, 2003; Rajapaksa & Dundes, 2002; Yeh & Inose, 2003) have also agreed that social support greatly influences the international students' health and wellbeing. Individuals with ineffective social support may be more sensitive to life stress, and they would feel undervalued and experience higher levels of distress (Hovey & Magana, 2000; Rudd, 1990).

There are two types of social support: instrumental support and emotional support. Instrumental support refers to assistance with practical problems, providing information, advice, and tangible aid. Emotional support concentrates on affective aid, showing sympathy and understanding (Sarason et al., 1990). Furthermore, social supports usually come from a variety of sources, such as family, friends, universities and other larger communities, so it is necessary to make a distinction among the different sources of social support because each source may help the students cope with various emotional, social, and educational problems in a distinct manner (Olson & Shultz, 1994; Ward, Bochner, & Furnham, 2001). Students opt for family, friends, or other students to seek help with emotional-social problems, and they opt for lecturers, administration staff for educational problems (Leong & Sedlacek, 1986).

Family is usually the main source of support, and it is perceived as a most intimate group of persons who take care of you and support you, emotionally and financially (Williams, 2007). Emotional support from family mainly focuses on dealing with being upset, feeling loneliness and discussing relationship issues (Ward & Masgoret, 2004). Some international students rely on their parents' judgment. Even if they sometimes disagree with their judgment, they still have faith that their parents have their best interests at heart. However, some international students may try to conceal the difficulties from their families due to concern about loss of face (Williams, 2007). For married students, marital relationships are considered as the primary source of social support. According to Stone Feinstein and Ward (1990), quality of spousal relationship is one of the most significant predictors of psychological wellbeing of sojourners, since harmonious marital relationships can offer a good source of social support and is buffer to the acculturative stress (Ward et al., 2001).

Support from friends is also an indispensable source of help for coping with stress. International students may rely heavily on their peers, rather than professionals for information support and emotional support (W. Heggins & Jackson, 2003). Many studies (Sykes & Eden, 1987; Ward et al., 2001) noted that co-national friends are the most powerful source of support for overseas students. Students from the same nation may offer some useful resources and share practical strategies for coping with stress in a new environment. Also, co-national friends can provide emotional support which helps the student reduce depression and overcome loneliness. Based on a study conducted in New Zealand (Ward & Kennedy, 1993b), satisfaction with co-national networking had a positive correlation with Malaysian and Singaporean students' psychological adjustment. However, contact with only co-national friends would impede culture learning and engagement into the host society (Adelman, 1988; Arthur, 2004). Just as Pruitt's (1978) research conducted in the United States, the overall degree of adjustment was poorer for those international students who had more contact with co-national friends. Therefore, co-national relationship can be both helpful or harmful,

depending on the nature of the relationship and the group's contact with other groups, especially with members of the host culture (Ward et al., 2001).

Therefore, establishing friendship with the local community is of importance to international students when coping with stress and promoting psychological wellbeing. Klingberg and Hull (1979) pointed out that familiarisation within the local context is related to the general wellbeing of foreign students, in both non-academic and academic aspects. Other researchers have maintained a similar opinion that satisfaction with the host national relationship has been positively related to the psychological wellbeing of sojourners (Searle & Ward, 1990; Ward & Kennedy, 1993a). Many international students however report that establishing friendship with local students is disappointing and a difficult experience (Arthur, 2004), especially Asian students who may experience greater difficulties than other international students in terms of adjusting to campus life and establishing friendship with host nationals (Sodowsky & Plake, 1992; Talbot, Geelhoed, & Ninggal, 1999) .

University is another essential social support source for international students to adjust to the new academic environment. Support from universities or other educational institutions mainly concern practical problems, including educational problems, language used and living arrangements (Ward & Masgoret, 2004). Many universities have established a special office serving international students, offering assistance programmes, such as orientation programmes geared to international students' lifestyle, English language support, peer programme, etc. (Jenkins & Galloway, 2009) to try to provide effective support to international students. However, Sawir et al.'s (2008) study found that few students rely on the support of the university since not all know that the services are available, especially at the early stages of their study.

This study aims to investigate social support in an Australian regional area to help international tertiary students adapt to the new environment. Two objectives were developed to achieve the research aim.

- What sources of social support provided for international tertiary students in an Australian regional area?
- How international student evaluate for these support?

RESEARCH METHODS

Qualitative research method was utilized in this study to gather in-depth and detailed information about participants' views to social support in the Australian regional area. Semi-structured interviews were conducted to collect data. A total of 25 participants, 20 international tertiary student and 5 university staff, were recruited by means of purposive and opportunity sampling. They were currently studying or working in University of Tasmania, Australia. The interviews were recorded with the participants' approval, and a list of questions had been sent to participants in advance of the interview. The interviewer asked follow up questions and elaborated based on the participants' input. After transcribed, data were input into and analyzed by computer-aided qualitative data analysis software NVivo software (version 8).

DATA ANALYSIS AND RESULTS

Thematic analysis was employed to analyze qualitative data in this study. Through systematic data analysis, themes emerging from the set of data and the relationship identified among these themes

gave researchers an explicit understanding of participants' perceptions of these issues. Two cycles of coding were conducted: the first coding cycle was an initial coding process. With NVivo (Version 8), researchers read carefully the transcripts sentence by sentence, and then drew and dropped the relevant meaning units into the same coding group. At the same time, new codes were created when new meanings which did not fit any existing coding groups were encountered. Followed by the first cycle of coding, the second cycle of coding was then undertaken. At this stage, such analytic skills as classifying, integrating, abstracting, and conceptualizing were utilized to find out the deeper relationship among those codes produced from the first cycle coding. Along with identified relationship, hierarchical structures were established and themes gradually emerged from the sets of data. According to participants' responses, they usually sought and obtained support from the following four sources - "university", "friends", "family", and "local community".

Support from university

Academic support

The university played an important role in providing academic support and administrative support to international students. Academic support would be the most important parts of university support. In the interviews, most of the student participants (16 out of 20) gave the responses that would seek support from their lecturer, tutors and/or other academic staff when experiencing difficulties in their study. An interviewed academic staff also said,

I think the main support we are asked for is academic support. A quite number of students asked for academic support. ...they asked in terms of discussing assignments, discussing their written components. Sending you emails all the time, trying to arrange a meeting often and regularly. (Academic staff 2)

Half of student participants gave a positive evaluation on the academic support they get from the university. These participants said that their lecturers were very willing to provide them with support and in turn they are very satisfied with the support. A Chinese student participant gave the following responses,

My unit coordinator and my supervisor are good. They are caring and very friendly, and if I have some questions, I can always contact them to talk about, and deal with problems, so I think it is good. (Student 20)

However, 3 student participants showed their dissatisfactions with the academic support provided by the university in the interview. Two salient problems were given: some international students did not think that they received enough attention from their lecturers or tutors; and others felt they were treated differently or even unfairly from the local students. These problems made them feel greatly excluded in the unfamiliar academic environment. A Chinese student participant stated her experience:

I think we are not got enough concerns from our teacher. Sometime they explain something, I cannot understand clearly...I think they should consider that I have disability in using the language. I am not same as local students. When I ask the faculty to support, they said you are international students, we are not in charge of you, you should go to international students' service and ask for help. Suddenly, I feel I don't belong to the university. (Student 12)

Administrative support

Apart from academic support, the university has set up an office – International Service which specifically provides support for the current and prospective international students. Two administrative staff members interviewed in this study is from this department. According to their

responses, international students usually came to the International Service and seek support for practical problems or problems which they might find difficult to solve by themselves and/or with the help of their friends.

Most people come here for more practical thing. I want to change my enrolment, or visa problems, or what I can change my course. Why most of students come to see us for such basic and administrative things. (Administrative staff 1)

But certainly there will always be students who need to come to us because they may be problem to their friends, their church, whatever they cannot help with him because it is too big. (Administrative staff 2)

Most student participants' responses agreed with the two administrative staff as they did have experiences in seeking support from the International Services. Based on students' feedback, some of them were satisfied with the services provided by the International Service. As a Malaysian student participant said,

It is helpful in many ways in terms that they can help in my study; they teach me how to do certain things, in terms of security, and activities. They do provide, organize trips, events and participate...So in general, I am quite happy with what the uni providing. (Student 8)

However, 2 student participants were still not satisfied with the administrative support provided by the university. These students complain included: they received slow responses from the university; and they did not get clear information from the university. A Chinese student gave the following response:

But sometimes their direction are not quite useful, because when I have some problems, they would say you should go to see this person or that person, They all said you should go for another person. I don't know. Maybe the institution like regulations or something like that. (Student 3)

Support from friends

Peer support is another important source of support in the process of adaptation to the new environment. Most student participants considered friends as their first source of support when they have problems. Friends usually provide support in advisory and emotional aspects.

Advisory support

According to the participants' responses, advisory support claimed by international students was wide ranging: seeking accommodation, looking for part-time jobs, car repairs, checking grammatical mistakes for their assignments, etc. A Chinese student participant said,

I think if I meet some problems, firstly I will ask my friends whom I consider as my best friends, to help me. I remembered that when I just arrived in Launceston, I stayed in a bag pack. And then I just asked my friend who was in Launceston to help to find an accommodation. She was very helpful and found a share-house which was close to uni within one week. (Student 20)

Emotional support

Emotional support is another important part of peer support. Great pressure caused by an unfamiliar environment might bring various negative emotions to these international students. Peer support can relieve their stress and cheer them up to overcome difficulties. Friends easily understand each other because they are under the same situation or have the same experience. Hence, emotional support from friends becomes very important in times of difficulty. Many

participants mentioned that they did not feel lonely because of their friends' companionship and encouragement. As a Chinese student participant said, "And I also got some friends here who shared the same beliefs and shared the same experiences. It's ok, I get a lot of times to talk them. I don't really feel lonely" (Student 4). Another Chinese student gave a similar response:

It is very helpful to talk to them (my friends). Only talking is enough. If you have some problems and you cannot talk to anyone, you just think it by yourself, it is very horrible. If you talk to them, they can said, "Yeah, I can understand". Maybe both of you have the same problems. (Student 14)

Most student participants (15 out of 20) gave a highly positive evaluation of support from their friends and acknowledged that their friends' support really played an important role in the process of adaptation. An Indonesian participant (Student 7) said, "And also I have a lot of friends here, I don't find anything difficult here, I am quite happy", and a Nepalese student gave an in-depth explanation on the benefits of the friends support:

Yes, they are quite helpful being communicate with people, being friendly with people. It makes you happy, makes your time pass easily, makes you fulfilling, and makes your heart and your mind feel happy. If you are happy in your heart and mind, you will be pretty happy, and you will look younger, and you will live longer. (Student 15)

However, support from friends also has its limitations. As the participants responded, most of their friends were international students as well and they were also a group of people who need to be supported. Thus, their friends would not provide more professional support in some aspects, such as academic support and psychological consulting. As an administrative staff member gave an example in the interview:

Like I know with some students if they suffering from depression and anxiety. Their friends know that is limited how much they can help, they are no try counselling. They are busy students as well. Therefore, the best way is talking to us and then we can refer counsellors to provide professional support. (Administrative staff 2)

Support from family

Due to its unique emotional attachment, family support was highly valued by the participants. Among the four sources of support, family is the only one which cannot help students to solve problems locally since it is normally far away from the host country. However, family support is irreplaceable and has its unique advantages. According participants' responses, they usually seek support from their family for some private problems. As a Chinese student (Student 3) said, "There are some things you cannot talk to your friends, for example, something important or something private, you can talk to your parents". And also the family might be one of the best listeners for some international students to pour out their negative feelings because "they can talk openly with their family about their worries" (Administrative staff 2).

Emotional support

Family support was considered by the half of student participants (10 out of 20) as a main source of emotional support. Among them, 3 student participants mentioned that they had kept a high frequency of contact with their family by either telephone or the internet. It is very important to keep an emotional attachment with their family because frequent contact could effectively relieve these students' acculturative stress.

Encouragement and care were two important aspects of family emotional support mentioned by these participants. As a Chinese student (Student 13) said that, "If I feel depressed, I will call my

mum, and mum will encourage me and said you can do better or you can study very well. My mum is my motivation". Family was considered by these students as an emotional strength to strongly assist them to eliminate negative emotion. Apart from encouragement, care and concern was another important aspect showed by their family. Academic performance, health and security were high concerns in their family. The Chinese student (Student 20) gave the response that "My family always worried about me. They always ask me to study hard and to eat better, keep healthy, and don't go out at night".

Financial support

According to participants' responses, family was the major financial sponsor for most international students although there were other sources of financial support including scholarships, part-time jobs, and their own savings. As mentioned above, financial concerns caused by the lack of money directly influence international students' standard of living as well as their psychological wellbeing. Those who have adequate financial support from their families would be at a low level of worries. The Chinese student's response is an example (Student 13) said, "No, I don't have financial problems, because my parents support me, now I don't need to worry about money, but I don't know in the future".

Advisory support

In the interview, 5 student participants noted that their family usually gave advices and help them to solve various problems in Australia. According to their responses, the elders in family including their parents, grandparents, and those who have had similar overseas experiences usually provide advices. Advisory support has become one of the important aspects of family support. As the student (Student 9) said, "They won't know what happening in most of time, and when they find out after we tell them, they would give wises, give commends. Generally it's quite helpful".

Regarding the evaluation of family support, 7 student participants gave a highly positive feedback on this support. An Arabic student (student 1) said, "They give me a big support...The best support is from family. Family give you all the support, the biggest support", and a staff member (Administrative staff 1) also acknowledged that "their family support them to make a huge effectiveness".

However, one student did not think that family could provide substantial support because they were far away from the host country. She also considered that frequently asking for support or speaking out negative feelings to their family would make the family worry. Therefore, she rarely seeks support from their family. It is her response: "You know they are too far away from here, so I meet some problems here, I don't ask for help from them, because if I talk with them they become very worried. It's not good". (Student 20)

An administrative staff raised another issue in regard to family support. Some students would have a negative evaluation of their family support because their family put too much pressure on them. These students' parents have too high expectations and force their children to achieve goals. Such pressure would negatively impact these students' psychological wellbeing. The following is the staff member's response:

But also some things could be a cause, because some of the pressure put on the students by the family, the expectations they are going to be successful, earning money to be spent for them to come to Australia. So that sort of expectation also can be a trigger to some of these problems as well. (Administrative staff 2)

Support from community

Compared with other sources of social support, support from the immediate community was given relatively less importance by the participants. About one third of student participants said that they rarely or never seek support from the local community. A Vietnamese student (Student 6) explained a reason that support from family, university, and friends basically satisfied her needs already so she did not need to seek support from the local community. However, an administrative staff participant (Administrative staff 2) considered that the underlying reason was cultural differences. As international students are more or less culturally different from the local community, it would be the greatest barrier to make close contacts with the community.

However, 8 participants in the interviews mentioned that church or any other local religious communities play an important role in providing support to international students in emotional and spiritual aspects as these religious communities tends to influence people spiritually by guiding them in a positive way to look at the world. These supports can be greatly helpful for a range of conditions including loneliness, homesickness and depression. A Chinese student participant expressed his feelings about church in the interview,

You can meet different people there, you can talk to your friends because they are quite friendly, they can talk to the priest. Maybe they cannot solve the problems, maybe they cannot give some practical ideal or practical help, but at least there are somebody you can talk to, and they will give you some relief, and they will let you be positive about these things. At least that's good. (Student 3)

DISCUSSION

Social support is considered as another supportive way to assist international students relieve acculturative stress and help them adapt to the new environment successfully. Social support indicates a process of seeking and receiving support from the outer world, whilst coping strategies pay more attention to adjustment of the inner world. Four sources of social support were identified in this research: family, friends, university, and local community. Due to distinctive functions, the four sources play distinctively supportive roles in these students' sojourn journey (Olson & Shultz, 1994; Ward et al., 2001). The study discovered that accessibility and effectiveness were two main criteria to evaluate these sources of support. The following sections discuss the four social support sources and international students' evaluation to these support strategies.

Family

Among these four sources of social support, family was the only source which could not provide "on the spot" support because most of them were far away from the host country (excluding those students who have a family in Australia). In spite of the location factor, family was still regarded as the most original source of support due to its unique biologic and emotional attachments with these students (Williams, 2007). Also, family was perceived as the most reliable and intimate group of people with whom international students could discuss private issues or pour out negative feelings without concerns (Zhai, 2004). Hence, family support was irreplaceable and had its unique advantages compared to other sources of support. A high frequency of contacts with family was beneficial to relieve acculturative stress and help international students to adapt to the new environment. Modern technologies, such as telephone and internet, greatly facilitated this kind of communication (Williams, 2007). Here, family support is discussed from three aspects: emotional, financial and advisory support.

Emotional support

Emotional support is one of the most salient functions of family (Ward & Masgoret, 2004). Encouragement and care as two positive emotional forms of family support identified in this study. Continuous encouragements could provide a positive strength for international students, making them more confident to overcome difficulties occurring in the acculturation process and helping them relieve negative emotions, such as frustration, depression, and loneliness. Thus, those student participants who were getting more family encouragement tended to be more successful in adjusting themselves and more effective in adapting to the new environment. Another important family support was care. As the participants' responses, academic performance, health status and security were the aspects that were mostly cared by their families. Care from the family brought great warmth to these international students and thus boost these students' wellbeing.

Financial support and advisory support

Apart from emotional support, families also provided financial and advisory support to international students. Family is the primary source of financial support for the international students (Rosenthal, Russell, & Thomson, 2006). As the study shows, 70% of the participants were getting financial support primarily from their families. Adequate financial support reduced the students' financial worries and therefore was beneficial to their health and wellbeing (Galloway & Jenkins, 2005; Mori, 2000). However, highly depending on families' financial support would raise these students' a sense of guilt and self-denial and thereby negatively influenced their psychological wellbeing.

Lastly, the family provided advisory support to international students. Although most families were not able to provide "on the spot" support due to the long distance, most international students were still willing to seek advisory support from their families because they are perceived as the most reliable and intimate people (Williams, 2007). It was also found in this study that international students tended to seek support from the older generation and those who had overseas experiences in their families (Root, 1985).

Limitations of family support

Since families provided a great support for the emotional, financial and advisory aspects, most of the participants in this study gave a high evaluation on their family support. However, the study found that a small number of students rarely seek support from their families for two reasons. The first reason was that some student participants do not believed that their families were able to provide substantial support because they were far away from the host country. Instead, they considered that frequently asking for support, constantly talking about negative experiences, or highly depending on the family would bring a great financial and/or psychological burden to the family. This group of students tended to be more independent and try to avoid seeking much support from their families. The second reason was the belief of the family. Some families, especially Asian families, had high expectations and pushed their children to be successful both academically and socially, and therefore caused a severe stress on the student (W. J. Heggins, 2003; Sue, 1981). Thus, the students from such kind of family tended to conceal the difficulties from their family to avoid losing face in front of the family.

Friends

Support from friends is also named peer support. Most international students would give their preference to peer support while facing difficulties in the host country (W. Heggins & Jackson, 2003; Zhai, 2004). The main reason of such heavily dependence on peer support is its accessibility. Under

some circumstances, it could be more convenient to access friends than other sources, such as the university, family, or community. Also, friends are commonly a group of people who are at the similar age, sharing similar interests and experiences and easily understanding each other (McGrath & Burtcher, 2004; Zhai, 2004). Thus, gaining support from friends was practical and could easily satisfy international students' needs.

Advisory support and emotional support

The two functions of peer support were advisory support and emotional support. On the one hand, friend was one of the important advisory conduits from which international students could obtain useful information. Such advisory information could be widely ranging from academic to non-academic aspects. Advisory support from friends could greatly facilitate international students' settlement in the unfamiliar environment academically, socially and psychologically (Ward et al., 2001; Williams, 2007). On the other hand, friend played an important role in emotional support (Ward et al., 2001; Williams, 2007). As most of participants in this study that talking to friends was one of the most effective ways to relieve stress, because friends' companionship was very helpful in overcoming negative emotions such as loneliness, depression, homesickness, and anxiety.

Issues related to friends support

Advantages of friend support were highly evaluated by the participants, while a small number of related issues were also raised. One of the issues was that international students were inclined to make friends with those people who were from the same nation, who were called co-national friends in literature (Arthur, 2004; Sykes & Eden, 1987; Ward et al., 2001). It is reasonable and explainable that co-national friends can understand each other better because they speak the same language and share the same culture. However, as Adelman (1988) and Arthur (2004) argue, grouping only with co-national friends and rarely contacting local friends would obstruct international students' engagement into the host society and increase their acculturative stress although it may help relieve their stress in the short term. Quantitative data in this study showed a significant negative association between international students' participation in local activities and their levels of homesickness, loneliness, depression and anxiety. .

Support from friends also has limitations besides one pointed out above. As most international students tend to make friends within the same student group, it makes it hard for them to give each other advices from a professional perspective. Also, there is a mutual influence between these students and their friends. Positive influences would provide an impetus to international students' adaptation, while negative influences would increase the stress in the process socio-cultural adaptation. There is limited literature discussing friends' influences on international students, but some research on friends' influences on adolescence could be regarded as references (Berndt & Keefe, 1995; Knecht, 2008).

University

Universities are professional educational organisations which do not only convey academic knowledge but also provide an opportunity for international students to contact with the local society and understand the local culture. Thus, support provided by the university would be more professional than other sources of support from both the academic and socio-cultural aspects. Support provided by the university is grouped into two categories: academic and administrative support.

Academic support

From the academic aspect, most of the student interviewees gave a positive evaluation to the quality of education and showed a satisfaction with the academic support provided by the University of Tasmania. Academic teaching staff play an important role in providing academic support for international students. Many students have experiences, either face-to-face or by email, of seeking support from lecturers and tutors in regarding to academic problems, assignments or other learning tasks. In most cases, they can get efficient feedback and professional support.

However, a small number of the student participants showed dissatisfactions with the academic support provided by the university. They were disappointed by not receiving additional attention. They believed that lecturers and tutors should pay more attention to international students who were generally disadvantaged in English language competency and unfamiliarity with the Australian educational style compared to Australian students. However, the lecturer participants' responses to this issue were divided. While some of them thought that educators should pay more attention to international students, the others proposed a totally opposite view that special treatments should not be given to international students as all students should be given equal support. Thus, whether to provide extra assistance to international students has become a controversial issue among academics in the university.

Some student participants were not satisfied with academic support provided by the university because they had experiences of being treated unfairly by academic staff at the university. They said they did not get as much academic support as local students and even refused support by some academic staff and the faculties due to their status as international students. Such experiences caused these students' negative feedback to the university, which may increase their acculturative stress accordingly.

Administrative support

Apart from academic support, administrative support is another important part of university support. Such support is mainly offered by the International Service or some other administrative departments at the university. The participants gave higher responses to the International Service which was set up to support current international students studying at UTAS. International students could access this service for some practical problems such as visa issues, legal problems, or travelling issues (Jenkins & Galloway, 2009; Zhai, 2004). If the problem was beyond the International Service's abilities, the international student would be referred to other relevant organisations or government departments, such as psychological counselling and immigration office. The International Service also played an important role in promoting intercultural communications, holding on-campus activities, such as Multicultural Day, Harmony Day, and celebrations for various cultural festivals.

In evaluation of the administrative support provided, efficiency and effectiveness are two essential criteria. In this study, some international student participants were highly satisfied with the support provided by the International Service. In contrast, those who were not satisfied with the International Service tended to have complaints about the slow responses and unclear instructions provided.

While the International Service was believed to be helpful by some international students, some participants rarely or even never accessed International Service or other administrative departments at the university (Johnsom, 1993). The lack of knowledge about the services provided was one of the main reasons that obstructed international students from accessing administrative support at the university (Sawir et al., 2008; Zhai, 2004). Another reason for rarely accessing university

administrative departments was that most students preferred to solve problems by themselves or seek support from friends. These students would turn to International Service or other university administrative departments for help only when the problem was beyond their own or their friends' capabilities.

Community

Apart from family, friends and university, local communities were another source of social support. However, the study found that international students rarely accessed the local community to seek support as about one third of the student participants in the study gave such responses. However, as to the reasons why they do not seek support from the local community, the international students and the university staff's opinions were divided. In views of the international students, they thought that support from other sources, including family, friends, and university, was adequate and there was no need to seek support from the local community. However, university staff considered cultural differences as the greatest barrier. Differences in languages, customs, values and lifestyles tended to greatly hinder the international students to closely contact the local community. The view of the university staff is supported by McGrath and Burtcher's (2004) study which argue that cultural difference is the main cause of low rate of seeking support from the local community by international students.

Nevertheless, those international students who had experiences in seeking and receiving support from the local community considered churches and other religious communities as a major area of community support (Butcher, Lim, McGrath, & Revis, 2002; Solberg, Choi, Ritsma, & Jolly, 1994). Most of them gave a highly positive evaluation to the support they gained from these local religious groups. As their responses, these religious groups had become a strong spiritual strength and help them go through the difficult time. With the help of religious beliefs or faiths, international students' acculturative stress and negative emotions were effectively relieved. This study also found that international students' local friends were mostly from local church or other religious communities (McGrath & Burtcher, 2004). In the views of these students, these local religious groups served as the bridge between the international students and the local society. Thus, positive contacts with local religious communities may help promote international students' social and psychological wellbeing.

CONCLUSION

An effective system of social support is very important to relieve acculturative stress and help international students adapt to the unfamiliar academic and socio-cultural environment. With unique emotional attachment, family usually provides more essential support in financial, emotional and advisory aspects. However, family support still has limitations because of location. Family's too high expectation also restricts international students to seek support from their family. Friend support is indispensable in the entire social support system. Companionship plays an important role in encouragement, consolation and company, which is very beneficial to help international students to relieve acculturative stress. However, it is pointed out that international students should try to make more local friends who are able to help them to adapt to the host country. Support from university also discussed in the study. Providing more academic support was requested by most international students, and promptness and effectiveness are two criteria to evaluate university administrative support. Lastly, community support, especially church or other religious community was highly valued by international students. Religious support offers a strong spiritual strength to help these students understand the world and themselves.

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Online Student Information System of Benguet State University (OSIS–BSU)

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ABSTRACT

Changes in Information Technology (IT) allow schools to utilize databases and applications such as Online Student Information System (OSIS) thus making the accessing of records centralized. One of the changes that came about is the online-based applications. These applications improved the traditional manual-transaction processing systems. Thus, most universities switch to the online-based system because of its effectivity to acquire, process, store and retrieve information from the Internet. Moreover, this system is accessible to all students' information.

Benguet State University (BSU) is still using the traditional manual and paper-based student information system. With the current system, the registrar and accounting staff finds it tedious in searching and preparing reports on student's information while the Office of Students Affair and Dean's Staff finds it laborious due to repetition of processes done in filing and updating of records. As main goals of the school "to generate and disseminate new knowledge and technologies that will promote sustainable resource development and enrich the academic programs of the university" and "to establish competent and effective services geared towards efficiency and economy" the current system is inconsistent with the asserted school's main goals.

The proposed OSIS of BSU would be a new way of record management and transaction processing that would achieve efficiency on processing student information. It would be a great help to the administrative personnel, academic personnel, grantors or stakeholders, parents and students in updating, retrieving and generating student data.

Keywords: Benguet State University, Online Student Information System (OSIS), Rapid Application Development (RAD), database, client and server.

INTRODUCTION

The main objective of the study is to design and develop an online student information system of BSU. In order to achieve the general objective, the following specific objectives of the study were identified:

1. To identify the information requirements in the existing student information system of BSU.
2. To identify the problems encountered in the existing student information system.
3. To identify the information requirements needed online.

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4. To determine appropriate security and control measures are needed for the online student information system.
5. To determine the benefits of an online student information system as perceived by:
 - a) Administration Offices;
 - b) Academic Offices;
 - c) "Grantors"/Stakeholders;
 - d) Parents; and
 - e) Students.

BACKGROUND

Changes in Information Technology (IT) allow schools to utilize databases and applications such as Online Student Information System (OSIS) thus making the accessing of records centralized. One of the changes that came about is the online-based applications. These applications improved the traditional manual-transaction processing systems. Thus, most universities switch to the online-based system because of its effectivity to acquire, process, store and retrieve information from the Internet. Moreover, this system is accessible to all students' information.

Marrero (2009) in his study entitled "Student Information System for the University of the Cordilleras" stressed that the concept of Information Systems (IS) emerged in the early 1960s. More often, when information system is defined, the field Information Science is always associated, IS is an academic field that deals with the generation, collection, organization, storage, retrieval, and dissemination of recorded knowledge. Furthermore, it is a collection of related components designed to support operations, management, and decision making in an organization. Generally, IS is supposed to inform people. Information System supports people or users in making intelligent decisions based upon the information derived from reliable data.

MIT (2009) gave emphasis that Student Information System (SIS) provides students with access to their academic and biographic records as well as the ability to update their address information and pre-register for classes; it provides instructors and departmental administrators with class list information; and provides advisors and departments with access to the individual academic records of their students. Therefore, SIS is an integrated approach in acquiring, storing, analyzing and controlling the flow of student data throughout the institution. Highly developed SIS can be useful in nearly all institutional departments' functions and can greatly increase efficiency and response times of traditional labor and time-intensive processing of student data.

According to Desousa (2008), Web based application have four core benefits. These are the following: (1) Compatibility. Web based applications are far more compatible across platforms than traditional installed software like web browsers; (2) Efficiency. Everyone hates to deal with piles of paper unless they do not have any other alternatives. The benefit of web based solution makes services and information available from any web-facilitated Personal Computer (PC). (3) Security of live data. Normally in more complex systems data is moved about separate systems and data sources. In web-based systems, these systems and processes can often be merged by reducing the need to move the data around. Web-based applications also provide an additional security by removing the need for the user to have access to the data and back end servers; and (4) Cost Effective. Web-based applications can considerably lower the costs because of reduced support and maintenance, lower requirements on the end user system and simplified plans.

According to Evangelista(2008) the university's Student Information System (SIS) of Nueva Vizcaya State University is a secure, web accessible interactive computer system that allows user access to grade reports, transcripts, schedule of classes, and remaining balance for the semester and register for classes online. Through the system, students would be assigned a unique identification number. All data to and from the university would use that unique identifier. The use of individual student records would: (1) Increase the admissions capacity to follow a student's progress over time; (2) provide better quality data to drive more enlightened policy decisions resulting in enhanced educational opportunities for all students; (3) reduce data collection burden through a web enabled SIS; and 4) as a tool of parents in monitoring the academic performance of their children.

Swartz (2007) gave emphasis that almost all institutions depend on data. Consequently, we are witnessing a profound change in the way in which institutions perceive, understand, and manage their information. There is now a clear recognition of the value of information, the creation of new information, the retrieval of existing information, the storage of important information, and the disposal of redundant information. There is also greater awareness of the cost of acquiring bad, incomplete, or inaccurate information.

Villafania (2007) reported that in the Philippines, the Commission on Higher Education (CHED) has initiated programs to secure academic records. CHED and the National Printing Office (NPO) have signed a memorandum of agreement (MOA) on the Securitization of Academic Records for college and university graduates beginning school year 2007. The move is part of CHED's drive to stop the use of fake diplomas and school records. CHED former chairman Carlito Puno said the MOA aims to secure authenticity of academic records such as diplomas, transcript of records and special orders from all colleges and universities in the Philippines. Thus, protect the image and integrity of Filipino College students to potential employers both locally and internationally. Puno emphasized further that the MOA would boost the competitive edge of the graduates in the labor market for it will ensure the integrity of credentials of the graduates while protecting the reputation of higher institutions of learning.

AISIS Online (2006) posted a precise definition of Ateneo Integrated Student Information System (AISIS) serves as the portal for Ateneo students, faculty and staff. Through the AISIS Online officially enrolled Ateneo students may view pertinent school information including their Individual Program of Study (IPS), grades, class schedules and the like. Students may also eventually enlist using Aisis Online. Ateneo faculty and staff with access to AISIS, on the other hand, may submit grades and access their class schedules from outside the campus.

Richard (2004) emphasized that information about students is vital, but time-consuming to manage and it is essential that the most effective tools be used to aid both staff and students go about their work and studies. The Cambridge Student Information System (CAMSIS) replaced various student records system used by the colleges, departments and universities. CAMSIS provides comprehensive and accurate information about student body and also improves data quality, reduce the administrative burden dramatically and provides better services to both academic staff and students.

MAIN FOCUS OF THE MANUSCRIPT

Benguet State University (BSU) is still using the traditional manual and paper-based student information system. With the current system, the registrar and accounting staff finds it tedious in searching and preparing reports on student's information while the Office of Students Affair and Dean's Staff finds it laborious due to repetition of processes done in filing and updating of records.

As main goals of the school “to generate and disseminate new knowledge and technologies that will promote sustainable resource development and enrich the academic programs of the university” and “to establish competent and effective services geared towards efficiency and economy” the current system is inconsistent with the asserted school’s main goals.

The proposed OSIS of BSU would be a new way of record management and transaction processing that would achieve efficiency on processing student information. It would be a great help to the administrative personnel, academic personnel, grantors or stakeholders, parents and students in updating, retrieving and generating of students’ data.

Moreover, the study was favorable and beneficial to the following;(1) BSU, this study becomes one of the realizations of the university's main goals is “To generate and disseminate new knowledge and technologies that will promote sustainable resource development and enrich the academic programs of the university” and “To establish competent and effective services geared towards efficiency and economy”; (2) Administrative Personnel, the proposed online information system would lessen tedious task in filing, updating, retrieving and generating of student information since offices would be provided with a computer generated output; (3) Academic Personnel, accessing of student records through the online system would provide academic personnel with timely student information for a more meaningful decision making tasks; (4) Registrar Office, the proposed online system would reduce problems in the existing system in filing and generating student’s grades slip. The staff would minimize the use of the filing cabinets since the records would be stored electronically; (5) Accounting Office, this would help the Accounting personnel in efficiently generating students’ statement of accounts thereby increasing work productivity in the workplace; (6) Office of the Students Affair, the online student information system would be their portal to the current status of students in a more updated manner; (7) Students, the OSIS would provide students on relevant and up to date information on their academic progress as well as statement of accounts while pursuing their respective degrees; (8) Parents, Grantors or Stakeholders, the online student information system would be their portal in monitoring their dependents’ academic achievements and statement of accounts; (9) Researcher, the study would permit the researcher to be able to thoroughly apply and tackle the study close at hand by relating or using tools, methods, and skills through the different actions concerned on the analysis and design of this study. This will also further improve the researcher’s knowledge and skills in systems development; and (10) other Researchers, the study would serve as bases and aid for other researcher in conducting similar studies.

In order to develop the Online Student Information System of BSU, series of interviews were conducted in the registrar’s office, accounting office, office of the student affairs, and dean’s office to know the processes involved in keeping, retrieving and updating the records of students. Questionnaires were administered to the administration personnel, academic personnel, stakeholders or grantors, parents, and students to capture their perceptions on the benefits that an online student information system has to offer. Data were gathered from the Administration office particularly in the offices of the registrar and accounting. The personnel under Office of Student Affairs were also included as respondents in the study. Interviews, observations, and gathering of printed sample forms, documents, reports and files were also important sources of facts and were major instruments in gathering the needed data. Questionnaires were also used to gather data pertaining to the perceptions of the users on the proposed system, the questions was based on the online student information system of Nueva Vizcaya State University.

A Slovin’s formula was used to determine the sample size for the IT students.

$$n = \frac{N}{1 + Ne^2}$$

Where: N = 296

E = 0.13

n = 49.31 or 49

The output of the guide questions were vital in the analysis of the study which provided suggestions in choosing and implementing the proper design and development intended to answer the issues raised in the existing system.

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

The findings, conclusions and insights of this study are interrelated. An Online Student Information System would definitely improve the efficiency in managing and maintaining student information, thus translating to a better student services for Benguet State University. It is therefore highly recommended in the near future. These can be done through the following recommendations:

1. A pilot test should be conducted to all users of the system to draw some more recommendations and improvements of the system.
2. The proposed OSIS be fully integrated in the existing website of BSU.
3. Security and control measures should be followed to secure and maintain the system.
4. Online student information system should be implemented so that the perceived benefits of administration and academic personnel, stakeholders/grantors, parents and students would realized.
5. Evaluation shall be done after the implementation of the proposed system in order to have a bases of integrating system requirement in line with the instructions growing requirements.
6. A retention and disposal policy be considered, where old records are disposed off after it has been captured and strongly digitally.

CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn.

1. The existing student information system of BSU is done manually using paper-based transaction processing system.
2. Problems usually encountered in the existing SIS were inefficient, error-prone, and costly maintaining of student information.
3. Information requirements needed online are student's portal details, program of study, academic achievements, and statement of accounts.
4. Security and control measures that are needed to be adopted in the SIS of BSU in terms of accessing the system are password protection, level of access to authorized users, physical security for ther server and audit trail.
5. The benefits of an online SIS would be efficient and cost effectiveness in maintaining as well as managing student information for BSU.

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Adapting Transformative Educational Research for Exploring Mathematics Education in/for Saudi Arabia

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ABSTRACT

Islamic societies were part of the Islamic Golden Age from the mid-8th century to the mid-13th century when they adhered closely to the principles and ethics of Islam. However, after colonialism when Islamic societies became somewhat uncritical followers of Western civilization, they lost their intellectual leadership position in the world. If Islamic societies want to regain a high standing in the modern world, it is clear that they need to take the path of modern science and technology but, importantly, a science that is 'beholden' to Islamic principles and views. In this paper we shall demonstrate that a transformation of the postgraduate education system of Saudi Arabia can enhance Islamic values in the education system of Saudi Arabia and that the inclusion of critical auto/ethnographic research can make a major contribution to this process. Critical auto/ethnography is a methodology produced by combining three major research paradigms: interpretivism, criticalism and postmodernism. This powerful methodology enables researchers to engage deeply in educational issues with/in their own culture (Taylor, Taylor, & Luitel, in press/2012). Drawing on doctoral research conducted by the first author, a mathematics teacher educator from a Saudi Arabian university, we shall illustrate this innovative approach to educational research as a tool for Saudi mathematics researchers that enhances and elaborates them to transform their professional practice within their own culture. "Critical auto/ethnography enabled me [first author] to be immersed deeply and reflectively in excavating key moments of my academic and personal life, coming to understand them closely and critically and representing them in ways that resonate with the experiences of others...providing an avenue for doing something meaningful for myself as a teacher educator and for the professional world surrounding me".

Keywords: Transformative research, critical auto/ethnography, Saudi education, Islamic values.

INTRODUCTION

Islamic societies had a great Islamic civilization (Islamic Golden Age, from the mid-8th to the mid-13th century) when they adhered to the principles and ethics of Islam. However, after colonialism, which resulted in loss of Islamic identity, and after becoming somewhat uncritical followers of

Western civilization and ignoring their Islamic values, Islamic societies lost their intellectual leadership position in the world. If Islamic societies want to retain their high standing in the modern world, it seems clear that they need to take the path of science but, importantly, a science that is beholden to Islamic principles and views.

Saudi Arabia is one of the Islamic countries. Based on the basic law of Saudi government, Article 1 in Chapter 1 states that “the Kingdom of Saudi Arabia is a sovereign Arab Islamic State”. Its religion is Islam. Its constitution is Almighty God's Book, The Holy Quran, and the Sunna (Tradition) of the Prophet (PBUH). Article 7 in Chapter 2 states: Government in the Kingdom of Saudi Arabia derives its authority from the Book of God and the Sunna of the Prophet (PBUH), which are the ultimate sources of reference for this Law and the other laws of the State. Article 8 in Chapter 2 states: Governmence in the Kingdom of Saudi Arabia is based on justice, Shura (consultation) and equality according to Islamic Sharia.

Undoubtedly, Saudi Arabia needs development and prosperity via science and technology. Modern education is a cornerstone of the development of Saudi society and modern educational research offers a powerful approach for improving and transforming Saudi education systems. Having said that, as a Saudi researcher who wants to conduct research that aims to investigate issues in my country such as why pre-service mathematics teachers are not interested in practising what they learnt about innovative student-centred approaches or the extent to which objectivist thinking holds back transformative education, do I have to ignore my Islamic values to conduct that study? Do I have to work as a robot? Why do Saudi scholars conduct research only in an objective way - an approach that does not care for their Islamic culture -? Can they look for an alternative approach that enables them to be aware of and maintain their Islamic values in this changing and challenging world? Is there any way of research allows them to conduct a research subjectively? In this paper we shall demonstrate such transformative educational research that can enhance Islamic values in education system of Saudi Arabia.

Critical auto/ethnographic inquiry is considered as a methodological example of transformative educational research. Critical auto/ethnography is a methodology produced by mixing three major paradigms: Interpretivism (how the world is), criticalism (how the world should be) and postmodernism (how the world could be). This innovative methodology provides science and mathematics researchers with an approach for engaging deeply in educational issues within their own culture (Taylor, Taylor, & Luitel, in press/2012). Drawing on doctoral research titled ‘transforming mathematics classroom culture in Saudi Arabia’ conducted by the first author, a mathematics teacher educator from Saudi Arabia, we shall illustrate this innovative approach to educational research as a tool for Saudi mathematics researchers that enhances and elaborates them to transform their professional practice within their own culture.

Due to the subjective nature of the approach, I prefer to discuss it by using my voice instead of an objective third person voice.

WHAT AM I DOING?

During my PhD study when I talk about my research methodology, many times I have been asked: is what I am doing considered research? Should it be called research? Is what I have been doing really research?

These questions imply that what I am doing is not research or it is not considered as real research – from the questioners’ points of view, of course. More so, these questions are often asked in a way

that involves scepticism, doubt, and even hostility or taunting. So, it was unhelpful for me to respond directly and simply to these questions in which my responses would be YES, it is, what I have been conducting is definitely considered real research –from my own point of view, of course.

Unfortunately, other points of view are judged against the standards set by our points of view; whether we identified those standards or not.

Therefore, I think the best way to answer those questions is by identifying what I (Naif Alsulami) mean by research. On the one hand, those who asked (or ridiculed) me about my research might not regard it as research, in which their thinking about and doing research has been applied in a particular way and from a specific perspective that dominates quantitative social science research, and it is sometimes called positivism (Willis, 2007). So, from their perspectives, if research does not follow their research epistemology, it would not be considered as research. Consequently, if one wants to judge my research, one has to judge it through its ideologies and lenses. Why I say that is because I do not agree with one shape of research which has to fit all types of diverse research purposes.

In responding these questions, I would say that for many people research should be objective, value free and involves finding absolute truths (or Truths). However, what if I claim that human knowledge cannot be independent of the human mind? What if I do not believe in absolute truth? What if I believe that all truths are “contingent on the describing activities of human beings” (Ellis & Bochner, 2000, p. 746)? Does this mean that I cannot conduct a research? In other words, am I unable to conduct research unless I accept an unquestionable Truth that needs to be discovered? I wonder: should I follow only one ideology and opinion in conducting research? Or should I follow what I think is valuable and appropriate for me and my inquiry? Basically and simply, what if I embrace an alternative epistemology?

As a Muslim, I do not believe in absolute truth unless it has been mentioned in The Quran by Allah or has been revealed to The Prophet. Imam Malik (A great Muslim scholar) said “everyone’s talk is takeable and rejectable except who is in this grave” (he was pointing to The Prophet’s grave in Medina). In The Quran, we are commanded to think, meditate and reflect about everything around us including ourselves. More so, The Quran has wondered about those who believe in something just because they have found their parents following that belief, without meditating about themselves and the world around them. How come we need to follow the conventional ideas of conducting research just because it has been established many years ago? We might follow it but, as mentioned in The Quran, after thinking carefully about it.

<i>I wanna see the world by my own eyes ...</i>	<i>not by others</i>
<i>I wanna hear voices by my own ears ...</i>	<i>not by others</i>
<i>I wanna smell a smell by my own nose ...</i>	<i>not by others</i>
<i>I wanna say a word by my own tongue ...</i>	<i>not by others</i>
<i>I wanna understand an idea by my own mind ...</i>	<i>not by others</i>
<i>I wanna do my research by myself which respect to my value, beliefs</i>	

Therefore, I began to ask myself: Why can I not adopt an alternative epistemology of research practice that provides me opportunities and means to transform my professional practice? I need to assert that with the hegemony of using only one perspective (whatever it is) and without the possibility of choosing and using alternative epistemologies that lead me to embrace alternative paradigms, the hope of development and transformation might have no place, the prospect of creative ability might disappear and the inspiration of the Islamic values are not allowed to appear.

WHAT AM I LOOKING FOR?

For those looking for an objective Truth, this kind of research is not compatible with their epistemology. I believe that no one knows the Truth except Allah. So, this methodology does not enhance me to look for Truth or even to aim to convince the reader (albeit I have tried). Rather, it allows me to build a new understanding of my learning and teaching experiences and to make meaning of certain educational aspects of my life lived in the context of an academic mathematics education culture in Saudi Arabia, in order to improve that context and my experiences, and to have a change by providing transformative professionalism. Not surprisingly, the approach provides non-deterministic outcomes. It provides new contextually plausible and possible understandings.

He says: "What you are doing is not research"... I say: "I know your epistemology!! Do you know my epistemology??"... He says: "No"... I say: "You do not know my research, then" He says: "What is your research then?"... I say: "This is the right question, detective!!!"

WHAT IS MY RESEARCH?

Because I tend to deem that there is not a single research definition that can fit all kinds of research purposes and because research definitions have been usually written from specific epistemologies, ideologies and perspectives, seemingly by nobody and out of nowhere, they do not necessarily need to be compatible to mine, and might not help me or you to understand my research. Consequently, I need to define my research based on my own sense of purpose. Hence, I might define my research in the following way.

My research involves ...

- Transformative learning about my own professional practices.
- Engaging myself in critical reflection about my past experiences.
- Examining critically my personal and professional values and beliefs.
- Reconceptualising my own professionalism.
- Committing to transform mathematics education culture (by transforming pedagogical practices, teachers and students' roles, and curricula images) within my own institution.
- Building contextual understanding and making meaning of my professional practice.
- Engaging myself and others to rethink about some educational aspects.
- Designing a creative research structure.
- Using alternative paradigms, an alternative methodology, alternative epistemologies and alternative quality standards.
- Subjective, not value free, constructive, emergent, contextualized, narrative stories.
- Complex and dynamic processes.
- Not being isolated or static; reflecting on, interacting with and responding to new constructive knowledge.

My story and my life

(This is my story, this is me, Naif)
What is my story? What is my life?
Here it is my story; here it is my life...
This is my story; this is me, Naif.
My life is a story; my story is my life...
Saying my story; to know my life...
This is my story; this is me, Naif
I wanna say my story; it is my life...
Forgetting my story; losing my life...
This is my story; this is me, Naif.
Do you wanna know about me?
Looking for my story; to get my life...
Ignoring my story; ignoring my life...
This is my story; this is me, Naif.

WHAT DO I MEAN BY PARADIGM?

A paradigm can be defined as a “comprehensive belief system, worldview, or framework that guides research and practice in a field” (Wills, 2007, p. 8). So, it is a worldview that guides me as a researcher and learner, and can be identified by its fundamental assumptions of ontology, epistemology and methodology (Guba & Lincoln, 1994; Willis, 2007). Ontology and epistemology are two major aspects of metaphysics (a branch of philosophy) and are essential aspects of a paradigm. Ontology is concerned with the nature of reality (or being or existence). It concerns what can exist or what is real. Epistemology is concerned with what we can know about reality and how we can justify our claim to know. Epistemology is about theories of knowledge (Willis, 2007). More details of my ontology and epistemology in this methodology are discussed in Interpretivism.

Interpretivism

I use three features of the research paradigm of Interpretivism (1) new research process, (2) alternative ontology and epistemology and (3) new understanding.

First, it allows me to embrace an open-ended research design process that allows me to welcome emergent research questions and an emergent mode of inquiry (Taylor, 2008; Taylor et al., in press/2012). I found Interpretivism appropriate for replacing the hegemony of conventional research that was restricting my thinking and writing in conducting and constructing a research.

Interpretivism is like a salad...
You have to put something on it to make it better,
Interpretivism is like a farm...
You can cultivate whatever you like,
Interpretivism is like a garden...
It is full of colours,
Interpretivism is yours...
You can construct it as you like,
Interpretivism is like a bird...
It keeps me flying,
Interpretivism is like a sweet...
It can't be bitter

Interpretivism is like going to heaven...

You never want to return back,

Interpretivism is like liberty...

It doesn't like restrictions.

Second, I was troubled by the limitations of the conventional ontological and epistemological aspects of research (Ellis & Bochner, 2000) - such as a materialist ontology in which reality, including thought and feeling, can be explained only in the material or physical world, and empirical epistemology in which I can come to know about the world only through experiments (Willis, 2007) - until I found an appropriate ontology and epistemology in Interpretivism.

An ontological position is about the nature or essence of the phenomena being studied (Orlikowski & Baroudi, 1991). My way of seeing people is different from how I see the objects of natural science. The differences between the social and natural science objects are respected in this paradigm (Bryman, 2001) in which people can give their meanings of phenomena, unlike natural science objects which cannot. The objective methods of natural sciences do not help me to understand my educational problems.

My ontology in this methodology is that the current academic culture of mathematics education in Saudi Arabia is not external to me; it is not imposed upon my consciousness and not entirely independent. Rather, it is a product of my consciousness. I live within it and in the process of fashioning. I have created it in my mind (Cohen, Manion & Morrison, 2000). As a constructivist, there is no reality other than what I construct in my own mind. Therefore, my reality could be experienced in a very different way by another consciousness. It might not be experienced in exactly the same way by different people. Therefore, I could say that the realities seen via this methodology are multiple (Guba & Lincoln, 1994). Different ontological positions can lead to very different positions on my issue (Willis, 2007). Hence, my ontology articulates that the Saudi mathematics education culture is not a single objective reality produced seemingly by no-one and existing 'out there'. I state ontologically that I get to understand the academic culture of mathematics education in Saudi Arabia based upon a specific context as a result of my cognition of my learning and teaching experiences.

An epistemological position is about the nature of knowledge and its forms and how it can be acquired (Cohen et al., 2000). Also, it could be about the nature of the relationship between me as inquirer and what can be known. By the way, ontological and epistemological positions are interconnected in such a way that my view of any one constrains my view of the other (Guba & Lincoln, 1994). So, when I conceive a situation under a study as a product of my consciousness, my claim that the knowledge produced is not an objective claim. Knowledge does not suddenly live in my mind or come by someone. Knowledge is built in my mind in a long, complex and complicated process of cognition. Therefore, I can say that I construct my knowledge based upon my understanding of my experiences.

My epistemology in this methodology sees knowledge as subjective, personal and based upon one's experience (Cohen et al., 2000). So, the quality and the viability of the information I produce via this approach does not depend on an objective correspondence to the "objective reality" "out there" (Kincheloe & Tobin, 2009, p. 524). Consequently, knowledge by critical auto/ethnography seems to be softer, more subjective and based on my experiences. Knowledge is not universal, it is contextualized. Knowledge is not common or standard; it is unique and personally experienced.

Third, the paradigm of Interpretivism authorizes me as a researcher to understand and reconstruct a new meaning of the academic culture of mathematics education in Saudi Arabia that we hold (Guba

& Linclon, 1994) by interpreting and reflecting upon my own learning and teaching experiences within that culture, based on the context of my own and my participants' thoughts, beliefs, values and associated aspects of the culture. So, my purpose is to generate a new contextual understanding. When I generate my data, I do not want to test an a priori theory; instead I want to construct fresh understanding. In other words, rather than seeking Truth in my inquiry, I intend to generate new understanding of the context of Saudi mathematics education. Interpretivism allows me to provide substantial descriptive details that are imperative in contextual understanding (Bryman, 2001).

However, it is important to state that my understanding does not have the status of objective truth. Rather, it is tentative and inter-subjective and still open to new interpretation (Guba & Linclon, 1994). My understanding needs to be understood in the light of particular circumstances, a specific context, and in the current situation (in which situations are changing, not fixed), in the light of my participants' interpretations of their understanding of that academic culture, and in the light of the mathematics education context where I and my participants were/are part of it (Cohen et al., 2000).

Interpretivism, freedom to gain and freedom to share

Interpretivism, freedom to reflect and freedom to know

Interpretivism, freedom to imagine and freedom to learn

Interpretivism, freedom from wrong and freedom to be creative

Interpretivism, freedom from objective and freedom of subjective

Interpretivism, I'm free from you... I'll say my view

Interpretivism, end to restriction... freedom of expression...

no conclusion... Truth is depression...

Criticalism

This research paradigm provides me with power that encourages me to deconstruct, reconceptualise and transform.

First, criticalism provides me with an essential power that helps me to deconstruct the hegemonic ideologies of mathematics education in Saudi Arabia which could be the major reason for holding back transformative education. I orient the power of this paradigm to revealing the assumptions of mathematics education that have been taken as granted. Deconstructing the hegemonic can be achieved by questioning (Cohen et al., 2000) and criticizing the status quo (Orlikowski & Baroudi, 1991) of Saudi Mathematics Education, the assumptions of teaching and learning ideologies, the assumptions of the prevailing images of curriculum, and by questioning aspect of mathematics education that have been taken as unquestionable. To have transformative education ideology critique should take place.

Second, criticalism contained with Interpretivism allows me to take a further step after deconstruction to create a new vision of mathematics education. It allows me to reconceptualise the academic culture of mathematics education in Saudi Arabia based on alternative assumptions of mathematics education that respect subjective knowledge but without privileging it. This combination of research paradigms enables me to reconceptualise the culture of mathematics education through critical reflection. So, many critical questions need be asked, pointing out flaws while interpreting to understand, leading me to generate a professional praxis (Taylor et al., in press/2012) for transforming the mathematics education culture, including its pedagogical ideologies, to make a difference, and to reconceptualise my thoughts about the mathematics education academic culture.

Third, following deconstructing and reconceptualising, Criticalism allows me to take action and create change (Cohen et al., 2000; Willis 2007). Criticalism does not provide me only with the power to criticize the current culture of mathematics education in Saudi Arabia but also to transform that culture (Guba & Lincoln, 1994). Critical turn is necessary to emancipate (Cohen et al., 2000) myself (my thoughts, beliefs, consciousness, awareness) from the current academic culture, the artificial boundaries, of mathematics education around me into which I have been encultured, to rid myself of the hegemonic situation of the conventional teaching and learning in mathematics education, and thus to be personally transformed. This research paradigm empowers me to link my research to the ideal of emancipation that could free me from viewpoints that restrict and control me in following a specific research perspective that does not have my own interests (Vinden, 1999). This emancipation seems to be a crucial point of transformation. Without this power, I may find it impossible to think creatively and critically, to understand subjectively and contextually, or to change and be transformed.

Postmodernism

Postmodernism seems to be controversial in its definition and its features. To the best of our knowledge, there is no only one definition for postmodernism. Postmodernism does not and cannot provide fundamental answers to questions about its meaning (St. Pierre, 2000). When I state a clear literal meaning of it, I - at the same time - break its essence because postmodernism entirely rejects objective truth. It refuses classifications and doctrines (e.g., right or wrong). It respects pluralism. It dissolves definitions.

However, a proper explanation of how postmodernism fits my inquiry could be that provided by Lyotard: "incredulity towards metanarratives" (Meynell, 1999), of that has been taken as granted. On the Holy Book: Allah (SWT) questions those who follow what has been taken for granted without thinking. Allah says "when we ask them to follow what Lord commands, they respond: we found our fathers on a constitution and we on their tracks are guided. What! Even if their fathers did not use their reasons at all, and were devoid of all guidance". (Holy Qur'an, 1:170). So, I am not going to say as those who Allah SWT deprecated their saying; I found people on a situation and I am on their tracks. Rather, I say I am going to use my mind, my reasoning to think of the ways of conducting a research that has been using. I am not going to follow others without thinking. I might follow others and might take something for granted but I need to use my mind, to think, to question, reflect and judge if it is make sense for me or not.

This paradigm opens my mind to think critically, and more importantly, freely about what I am doing without sticking to following obediently what I was doing, to think carefully about what I have taken as granted in the way of conducting research. Moreover, the ideas of validity and reliability of research have become the subject of my sceptical view of what comes as typical and trusted research.

Postmodernism brings to our attention the very important concept of 'representation' (Denzin & Lincoln, 2000) and research based on Art (McNiff, 2008; Eisner, 2008). Postmodernism welcomes me to use figurative form such as pictures, poems and poetry to convey the meanings I want to express (Eisner, 1981, 1997) and to extend our understanding of the Other (Bryman, 2001). It enables me to break the hegemonic role of scientific writing of research. The reason for writing unscientifically is that I need to write in a way that allows readers to understand and feel my particular version of mathematics education being described (Denzin, 1997).

Postmodernism encourages me to use powerful new logics such as metaphorical logic that facilitates me to capture the complexity of teaching and learning aspects by engaging in multi-schema

envisioning, and new genres such as the narrative genre that also helps me to richly depict the complexity of my experiences in mathematics education by speaking from my lived storied perspective, foregrounding its contexts, events and people (Taylor et al., in press/2012). By using both, I will be able to make new sense of my experiences of a complex study of mathematics education in Saudi Arabia.

CRITICAL AUTO/ETHNOGRAPHY

My experiences in school life are neither simplicity nor linearity. They are rich and complex in quality. Capturing the richness, complexity and the quality of my school life cannot be achieved by quantitative tools and methods alone. It entails me – Naif Alsulami; a researcher and learner – to use an alternative form of inquiry to capture them. Drawing on the aforementioned paradigms I construct a critical auto/ethnographic methodology.

This methodology allows me to emphasize on myself (auto), my culture (ethno) and the inquiry process (graphy) (Reed-Danahay, 1997). Auto/ethnography connects my personality (auto) to my culture (ethno) in which the distinctions between both become blurred. It allows me to breach the conventional separation of myself and my research by making myself the object and the instrument in conducting research (Ellis & Bochner, 2000).

Critical auto-ethnography, however, seems to be sometimes a loose term. It can be used in many research situations. There are some commonly used terms that provide a sense of the range of methodologies associated with autoethnography (Ellis & Bochner, 2000). It can be used, for example, as a narrative inquiry. Critical auto-ethnographers are not like objectivists. They are very flexible in moving under several terms of inquiries. I found that Taylor's definition is appropriate to me. Taylor (2010) said: "Critical auto/ethnography is situated at the nexus of ethnography, writing as inquiry, arts-based research, narrative inquiry, evocative autoethnography, anthropological poetics, philosophical inquiry, critical hermeneutics and practitioner inquiry" (p. 7). So, critical auto/ethnography can be understood as non-positivist research.

Critical auto/ethnography provides me with an approach to immerse myself deeply in the moments of my (academic as well as personal) life, to understand them closely and critically. It makes my life and experiences in school the focus of the research (Reed-Danahay, 1997). So, I am allowed to make my own experiences as a student, a mathematics teacher and a teacher educator a "topic of investigation in its own right" (Ellis & Bochner, 2000, p. 733). My experiences have not been isolated; rather they interacted with others who became part of my experience. So, other experiences could be involved in the inquiry. Moreover, my experiences and others' were not isolated from our society, they were reflected within it. So, features of our society and their influence upon us could also be embedded in the inquiry. Furthermore, this approach allows me to indicate to our Holy Book (The Qur'an) and our Prophet (Mohammad PBUH) that we are inspired by them to demonstrate and show the culture behind our experiences, noting that our social culture is mostly derived from Islamic culture. Auto/ethnography provides me with an avenue for doing something meaningful for both me and the world surrounding me (Ellis & Bochner, 2000).

My experiences are not static; they are changing and evolving. They are unique and should be studied in their contexts; they are non-generalizable (Cohen et al., 2000). Therefore, this methodology allows me to emphasize significant details and necessary accessories surrounding my experiences with mathematics education. They are very important and crucial in contextual understanding (Bryman, 2001).

This culturally inclusive approach to educational research allows me to generate my data through stories, my personal experiences and participants in an actual college setting and to discuss the meaning of those stories and experiences (Creswell, 2008) by reflecting critically upon them in order to understand deeply. What makes this approach to knowledge production legitimate is that it is inspired by the Holy Quran. In the Qur'an, there is a chapter (28) by the name of Al-Qasas (Narratives/Stories). The entire chapter (12) Yusuf (Joseph) has been devoted to the story of Yusuf (Joseph), Yaqub (Jacob), Zulaikha and the brothers. In the beginning of the chapter, Allah (SWT) says: "We narrate to you (O' Prophet) the most excellent of the narratives by (means of) what We have revealed to you this Qur'an". (Holy Qur'an, 12:3). In the concluding verse of this chapter, Allah (SWT) says: "In their histories there is certainly a lesson for men of understanding. It is not a narrative which could be forged, but a verification of what is before it and a distinct explanation of all things and a guide and a mercy to a people who believe". (Holy Qur'an, 12:111). In several places in the Quran Allah (SWT), after telling a story, says "that they may reflect", "perhaps they understand". These are characteristics of transformative learning which lie at the heart of transformative educational research.

My aim in using this innovative research is to understand and portray my and others' lived experiences which demonstrate subjectivity and personal accountability which I employ as 'direct testimony' to justify my own inquiry (Ellis & Bochner, 2000). My goal in telling my experiences is not to portray the facts of what happened to me precisely, rather, my purpose is to convey the meaning of my lived experiences in mathematics education. I am telling stories to engage the reader to enter and feel part of them. I am writing in a way to evoke the reader to feel and think about my experiences and about his/her experiences in relation to mine. I want the reader to experience my experiences that I am writing about (Ellis & Bochner, 2000). This research methodology requests me to be the one who is generating the data, gathering related information and evidence, presenting my past and present experiences, criticising them, reflecting upon them and coming to understand them deeply. In this type of research I recognize myself as a self-ethnographer as I am sharing my stories with others in mathematics classrooms. My subjectivity and personal accountability are dynamic in this approach. I need this kind of understanding due to the complexity and competitiveness of my educational inquiry. It goes without saying that my aim is to explain the complexity of experiences through verbal description rather than testing hypotheses with numerical value.

MY WRITING...

Critical auto/ethnography considers writing as a method of inquiry (Taylor, 2010), as a method of generating my data, and as a way of finding out about myself and my topic. Writing is a way of knowing. I inquire as I write (Richardson, 2000).

It is vital writing... Not static
here is my own voice... Not the omniscient one
I'm writing in the first voice... Not the third one.

My voice is known... Not hidden
I'm an instrument... Not a contaminant
I'm onymous... Not anonymous.

My research should be read... Not scanned
Its meaning... In the reading... My attention... Turns to writing... Not boring
Never become precisely... Completely... Yet, I keep it up... In writing.

Writing is viable ... Not for reliable
Writing is fun... Not grief-stricken.

Writing is my life... As I write about my life
Writing presents my voice... As I write my experience.

Who you are?... Do you know?
When you write... You may know!!

Writing about myself... To find out myself
Writing my stories... To see myself.

I write unknown to be known... I write to know what was unknown
I write to know... what I didn't know.

I learned to write what I know... But didn't know how to write
I learned to write after I know... I learned to know before I write...
I learned to write... But not to know... because writing is about what I know

What if I write to know...
Write what I don't know to know...
Write what is unknown to be known.

My writing has different ways... because my life has different stories.
Writing in different ways... means considering new aspects of my life.

I write about myself... From myself... To understand myself
I wanna make a difference... About my experience

Should it be academically... scientifically??... But why??!!
Why not narratively!!... Why not poetically!!... Why not evocatively!!...
Emotionally!!... Impressively!!
Why not??!!... So,... Let's do it.

CONCLUSION

The power of this approach seems to be most obvious in its ability to enable us to be(come) culturally inclusive. From the Islamic view, we are encouraged not to be isolated but to have an inclusive culture (Islam and other cultures). The Prophet said: "Wherever you happen to find wisdom, take it". At the same time, we are discouraged from being uncritically dependent. What this means is that whatever or wherever we find an advantage we are very much encouraged to take it, provided that it does not conflict with Islamic principles. Accordingly, Islamic principles and values should be present in any prosperity or development.

Therefore, transformative educational research is needed to enhance Islamic values in the education system of Saudi Arabia. Critical auto/ethnography could be used as a tool for Saudi mathematics education researchers that engage them in critical reflexivity to transform their professionalism. The

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 approach is unconventional in that is based on the researchers themselves, their personal lived experiences and their own culture. Critical auto/ethnography enables educational researchers – especially novices - to be involved firsthand in a process of transformative learning which lies at the heart of transformative education.

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Integrating Practice, Theory and Research within the Intercultural Classroom: The Challenges and the Benefits

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ABSTRACT

In recent years the demand for international education has grown worldwide. Experienced international educators, however, argue it is time to move beyond concepts of national or even international curricula and embrace instead an 'intercultural' curriculum. The essential attributes of an intercultural curriculum though remain pedagogically and methodically nebulous. International school practitioners would be ideally placed to create a more defined framework for intercultural practice. However, for many school based practitioners, educational research and classroom practice are perceived as distinct discourses. The evolution of modular and long distance research programs may offer a solution by encouraging classroom based research. Nonetheless, integrating practice, theory and research into the classroom, is not without methodological, theoretical and ethical challenges, especially within an intercultural context. This said, possibly the biggest challenge facing novice researchers is knowing where or how to begin. It is argued that retrospective reflection on past practice may allow novice researchers to reinterpret this practice theoretically, thus supporting the development of a methodological framework for future research and pedagogical initiatives.

Within this paper the attributes of an intercultural curriculum are outlined. It is argued that central to this curriculum is a form of dialogue based upon empathy, self-awareness and an understanding of the situated nature of thought. Retrospective reflection on practice is utilized to demonstrate the difficulty engendering such dialogue. The necessity of a more defined framework for intercultural practice is illustrated with reference to previous efforts to develop a cohesive pedagogical approach amongst a culturally diverse staff within a Pre- Nursery situated in a large British international school in Thailand.

Keywords: Intercultural curriculum, genuine dialogue, retrospective reflection, tools and artifacts.

INTRODUCTION

In recent years the demand for international education has grown worldwide. In Bangkok alone the number of self defined 'international schools' has increased exponentially. International schools are

incredibly diverse in nature (Hayden, 2006) and their historical development complex. Nonetheless, a high proportion remains intrinsically linked to one particular nation state and its culture.

Experienced international educators, however, argue that it is time that education discard its national roots and embrace interculturalism (Walker, 2002; Heyward, 2002). It is argued that an intercultural curriculum, whilst recognizing the importance of cultural heritage, will produce future adults capable of effectively crossing both geographical and cultural boundaries.

Within this paper, the theoretical conceptions underlying an intercultural curriculum will be briefly explored. The nebulous nature of the concepts therein will be discussed and the need to develop a coherent framework for their practical application reviewed. The importance of integrating theory and practice within the development of such a framework will be examined. The crucial role of reflective practice within this endeavor will be illustrated through the use of a case study, wherein attempts were made to develop a cohesive pedagogy within a culturally diverse Pre Nursery situated within a British international school in Bangkok. The benefits of reflective practice for future practitioner research will also be considered.

INTERCULTURALISM AND INTERNATIONAL SCHOOLS

Influenced by socio- cultural theory, the theoretical basis of this paper embeds all human behaviour and cognition in interactions within a particular cultural context. However, this is not a reductionist perspective. Rather, utilising Bakhtin (1981) , ‘human ideological becoming’ (p. 288) is seen as an active process wherein meaning is constructed through the hybridisation or selective assimilation of a particular social language (defined as ‘concrete socio linguistic belief systems’ – p. 356) from the multiple social languages or ‘heteroglossia’(p. 356) that exist. For Bakhtin, the process of hybridisation is a dialogic process whereby one struggles to take a word historically ‘imbued with the intention of others and imbues it with one’s own intention’ (p. 282). In this perspective, the culture that Hofstede describes as ‘the collective programming of the mind which distinguishes the members of one human group from another, (1980, p. 25) is perceived as a process of negotiated meaning making (Wells, 1986) bounded by the discursive framework (Ball, 1993) of a particular social and historical context.

However, despite the active and participatory nature of the process of ideological becoming, the nature of thought means that an individual’s particular socio-cultural background influences their patterns of thinking in ways both seen and unseen (Bohm, 1996; Hofstede, 1991; Fennes & Hapgood, 1997; Allan, 2003, Van Oord, 2005) and creates patterns of thought that can remain both unnoticed and unquestioned by the individual. For Bohm(1996), this can occur because of our minds lack of awareness of its own organizing processes. Consequently, there is a potential to convert our culturally and historically created opinions or ‘assumptions’ (1996, p. 8) into emotionally and psychologically powerful ‘truths’ (Bohm, 1996, p. 8). Buber, (1947) concurs and notes that humanity often prefers to cling to security and familiarity within our thinking, what Bohm would refer to as habits of thought. This reluctance to recognize the situated nature of our own thought, often leads us to misunderstand our own motivations and reactions (intellectual, physical and emotional) with subsequent effects our ability to communicate. Unable to understand the culturally and historically situated nature of our own opinions, we have difficulty recognizing the relative value of opinions created in a social, historical or cultural context that differs from ours.

As Head of the International Baccalaureate Organisation, George Walker (2002) notes that education plays a crucial role in the dissemination of the social languages that make up our particular culture. However, this is often done in a manner that acts to disguise their nature and

thus reinforces the power of these cultural assumptions as authoritative truths. Walker (2002) notes that this aspect of education has been intentionally utilized and goes as far as arguing 'education has been consciously designed and used by national governments to inculcate an awareness of national identity and often nationalistic ideology' (p. 19). Conversely, the significant role of education within the propagation of cultural 'truths' has encouraged many educationalists to argue that schools, especially international schools, are ideally placed to actively encourage students to transcend habitual thinking through the creation of a new 'intercultural' discourse (Heyward, 2002). For Walker (2002) the justification for consciously developing intercultural understanding is political and ideological; he argues that it is necessary for world peace and the future longevity of the human species, an ideal fully supported by Bohm (1996). However, one could argue that such ideals may not be deemed crucial to those responsible for the fiscal viability of schools within the 'competitive marketplace' (MacDonald, 2006, p. 192) of international schooling. Nonetheless, the global nature of the world economy may make intercultural understanding a necessity for today's business leaders as well as today's political leaders (Heyward, 2002) making the conscious support and development of intercultural understanding an attractive proposition for national as well as international educators.

Exactly how a school inculcates the ability to rise above habitual thinking and engage in effective cross-cultural engagement (a skill labeled intercultural literacy by Heyward, 2002) is currently the subject of intense debate (Tate, 2011; Poore, 2005; Bronson and Merryman, 2009; Davy, 2011; Joslin, 2002; Van Oord, 2005; Allan, 2003; amongst many others). However, much of this debate draws on conceptions similar to Bohm (1996) and Buber (1947). Bohm argues that intercultural communication demands a form of dialogue, labeled by Buber as 'genuine dialogue' (1947, p. 22), which is based upon empathy and a comprehensive self awareness. To engage in genuine dialogue - rather than the 'monologue disguised as dialogue' (Buber, 1947, p. 22) that often occurs - awareness of the situated nature of thought is crucial. For Bohm, understanding that our socio-cultural upbringing is intertwined with our whole being (socially, emotionally, psychologically and behaviorally) is a crucial pre-requisite to recognizing the centrality to another of their cultural 'truths'.

Drawing on classic constructivist learning theory, Bohm argues that exposure to alternative truths or assumptions allow one to question the nature of one's own. However, exposure to alternative truths in isolation may not be sufficient for the development of intercultural literacy. If cross-cultural exposure does not occur within a suitably supportive context, the result can be negative in the form of cultural chauvinism, marginalisation or the denial of differing cultural assumptions (Heyward, 2002; Bronson & Merryman, 2009, Poore, 2005). Thus exposure to alternative assumptions has to be accompanied by a systematic and supportive analysis of the nature of our own assumptions and their power over our whole being. In other words, implicit 'truths' have to be made explicit, sympathetically investigated and subsequently reorganized. A process succinctly described by Heyward (2002) as 'drawing on previous stores of meanings and reinterpreting - reconnecting- realigning these in the light of new experiences' (p.19).

For those advocating the development of an intercultural curriculum, genuine dialogue is essential but itself necessitates the facilitation of other vital personal attributes. These include (Tate, 2011; Poore, 2005; Davy, 2011; Joslin, 2002; Van Oord, 2005; Allan, 2003):

- Self-knowledge (including an understanding of the multiple influences on the self)
- Awareness, tolerance and respect for diversity (empathy is also often mentioned)
- Flexibility of thought and being open minded
- Multilingualism

- Taking responsibility for one's actions
- Inclusion by design

It is clear to see that international school educators could be ideally placed to aid the successful development of intercultural literacy. The complex and diverse student body found within many international schools already having been exposed to a multitude of cultural truths. However, many of the concepts noted as integral to an intercultural curriculum could be seen as nebulous and difficult to interpret pedagogically or methodologically. The notions of self-awareness, the multiplicity of the self, open mindedness, empathy, respect and genuine dialogue are all open to a wide spectrum of what Ball would class as 'public interpretations and reinterpretations' (1993, p. 11) and may themselves be steeped in the particular socio-cultural paradigm of liberal humanism (Tate, 2011). Moreover, developing an intercultural literacy may demand an innovative response from institutions as well as individuals at a level which may, for various reasons, be difficult to achieve (Van Oord, 2005).

Recent attempts to instigate practice change within a 40 place Pre- Nursery (catering for children aged 2.5 – 3.5 years old) situated within a large international school in Bangkok, indicated the difficulty engendering the empathetic self awareness deemed necessary by Bohm (1996) and Buber (1947) for genuine intercultural dialogue. Admittedly however, engaging in genuine or intercultural dialogue was not the original aim of the events under discussion. In fact, the realisation that this was not only desirable but necessary did not occur until much later. Instead, the original aim was the much more practical desire to achieve a more cohesive pedagogy within a relatively large Pre- Nursery with a diverse staff. However, the lessons learned from these experiences have been far-ranging. Consequently, they will be outlined and used to demonstrate the important role of reflection in instigating educational initiatives and research.

INTERGRATING PRACTICE AND RESEARCH IN THE CLASSROOM

Utilizing retrospective theoretical reflection to analyze practice and promote further research; methodological considerations

International school practitioners would be ideally placed to create a more defined framework for intercultural practice. However, for many school based practitioners, educational research and classroom practice are perceived as distinct discourses. The evolution of modular and long distance research programmes may offer a solution by encouraging classroom based research. Nonetheless, for individuals unfamiliar with academic research the concept can be extremely daunting, with methodological concerns often topping the list of worries. Text books aimed at novice researchers often separate methodology from its theoretical underpinnings, whilst experienced researchers insist that effective methodologies are those that grow from clear philosophical and theoretical paradigms (Cole, 1996). Moreover, many practitioners become involved in further study to make theoretical sense of the vast amounts of unstructured data that experience has provided. Hence, a methodology that encourages reflection upon this accumulated data may, at least initially, be most helpful. This is a viewpoint supported by Powell (2000, p. 104), who argues that 'job embedded reflection' is the form of professional development most likely to enhance teaching and learning.

Schon (1983, p. 68) identifies two aspects of reflective practice. The first, 'reflection- in- action' engenders immediate attention and response, through the utilization of one's emotions and prior experiences. The second, 'reflection- on- action' is where we re-examine this response in an attempt to make more sense of its meaning, often through a form of systematic analysis. The

danger for busy practitioners being that without adequate 'reflection-on-action', the immediate responses engendered during 'reflection- in -action' may be habitual rather than analytical. Within the following case study an informal 'reflection- on- action' was utilized. By this it is meant that the significance of the events analyzed was realized only in retrospect and thus were not subject to a systematic data collection, although as soon as their potential import was noted they were subjected to a systematic analysis.

The use of informal reflection of past practice raises ethical and methodological issues, as consent can only be achieved retrospectively and the data is anecdotal and based on memory. Seeking further clarification from those involved can ensure that consent is informed (Morrow & richards, 1996; Bera, 2004) and that perceptions are more valid. Nevertheless, such evidence cannot be offered as conclusive. However, despite these shortcomings, it could be argued that such reflection is a crucial step for practitioner researchers. Through the reflective process theoretical explanations can be applied to existing yet nebulous research 'problems', further investigation can be prompted and methodological considerations underpinned by theory. This notion underlies the discussion below.

Case study – encouraging dialogue and practice change in an international school

The pre-nursery upon which this case study focuses is situated within a large British international school in Thailand. Employed within the nursery are two expatriate class teachers from the UK and four teaching assistants (Ta's) -all of whom are Thai nationals and are fully qualified teachers in Thailand, holding either bachelors or masters degrees in education. This discussion follows attempts to encourage a cohesive, play based pedagogy amongst this diverse staff.

Within much early years literature (Athey, 2007; Abbot & Rodger, 1994; Anning & Edwards , 1999; Bruce, 2001; fisher, 2002; Ganndini, Etheridge & Hill, 2008; Garvey, 1990) and recent UK policy (DCSF, 2008a, 2008 b; DFE, 2011) child initiated play is seen as fundamental to the success of children's learning. However, upon instigating a play based pedagogy within the pre-nursery, it became clear to myself and my colleague that such an approach was not only unfamiliar to our TAS, but actually contradicted their expectations about education. Interestingly, the very practice previously witnessed in the school further compounded these views; the school having for many years adopted a more structured approach to early year's education.

Consequently, a decision was made to illustrate the benefits of a play based approach to our Ta's through a series of specifically designed interactive workshops. These workshops were planned to maximize discussion and were based on actual incidences of play recorded within the setting. They were held approximately every month during the first two terms of the academic year following my employment. The aim was to illustrate the theory behind our pedagogical choices through shared contemplation of how this could work within our particular context. Theoretical input was based on the work of current respected early year's authors such as Carr (2001), Fisher (2002), Abbott and Rodger (1994), Hurst and Joseph (1998) and Anning and Edwards (1999). All workshops started with a focused activity, for example, the analysis of a previously recorded incidence of children's play, but would then be opened up for questions and discussion instigated by the TAS. The teacher leading the workshop would initiate this discussion, but would then allow the Ta's to shape its direction, joining in only when requested, to clarify a particular viewpoint, for example, or answer a direct question. Accordingly, all discussion focused on the Ta's own perceptions and understanding. It was hoped that by making the implicit expectations within our pedagogical choices explicit, the disparity between these and previously held beliefs would become be lessened, dialogue would ensue and a more cohesive pedagogy would arise. However, despite an enthusiastic response to the workshops

and some intense and interesting discussions (within which support for play based pedagogy was warmly expressed) more cohesive working practices did not emerge.

To take a specific example, during the workshop discussions all Ta's showed a marked enthusiasm for respecting children's play choices. However, this was not reflected in practice. Conceptually the difficulty appeared to be confusion between giving children choice and the need for children to show respect for adult authority. This meant that children were often interrupted during self chosen play to fulfill routine tasks such as changing their reading book, or to take part in a more adult directed activity. Not to immediately comply with a request often being perceived as disrespectful, rather than potential evidence of complete involvement in a self chosen task.

In order to resolve this, a number of workshops focused on the importance of sustained, uninterrupted play for a child's conceptual and emotional development. The practical implications were also discussed. For example, keeping routine tasks to a minimum and waiting until a child was less involved before making any requests. In addition, the role and purpose of adult initiated activities was also investigated and the concept that not every child need partake was introduced. The distinction between disrespectful behavior and a child's complete involvement in their own thinking was also explored. However, despite this, children continued to be interrupted whilst completely involved in their learning. Consequently, it became obvious that encouraging any form of sustained conceptual and behavioral change necessitated more prolonged and diverse intervention than discussion (however intensive) within a series of interactive workshops.

At the beginning of the third and final term, a decision was made to amalgamate what had previously been two separate pre-nursery classes into a single pre-nursery unit. This initiative was time consuming as it involved the re-organization of both the environment and the working practices in both classes. Consequently all additional commitments, such as the workshops were suspended. However, when teaching within the single unit began it was noted that pedagogical behaviors that remained unchanged after numerous workshops had changed considerably. Furthermore, change in working practices were noted amongst all staff not only Ta's. The implications of this, however, were not realized immediately. It was only through the utilization of retrospective reflection that their potential import was understood.

At this point it could have been very easy to abandon both the workshops and any further analysis of their failure. However, subsequent enrolment in a long distance modular research program encouraged a re-analysis of the workshop process through theoretical reflection. As noted above this analysis was undertaken retrospectively and was based upon perception and shared memories, rather than hard data. Nonetheless, despite any resultant shortcomings, such analysis did encourage the development of a more cohesive theoretical framework that is now being used as a basis for further research. In the following paragraphs the main aspects of the retrospective reflection will be outlined before their impact on current research and pedagogical initiatives will be explored.

Theoretical reflections

Utilising the work of Bohm (1996) it became clear that, despite the inclusion of discussion, the workshops were completely entrenched in a single set of cultural assumptions. Bohm's insights into the manner in which our 'habits of thought' pervade our very sense of self and disguise our underlying motivations illuminated a grave error in our thinking. Originally it was hoped that by sharing information and developing discussion we could close a perceived gap between expectations. However, the cultural bias of the discrepancies we had noted lay unexplored. Consequently, our message seemed to be that we had the best way and change should only come

from the TA's. Thus, as far as Buber (1947, p. 22) would be concerned, we had failed to engage in genuine dialogue but had instead engaged in monologue disguised as dialogue; inadvertently presenting our 'assumptions' as 'truths' (Bohm, 1996 p. 8) without an examination of their situated nature. Bakhtin (1981) would argue that by doing so we had presented our ideas as an 'authoritative discourse' (p. 346), one whose meaning and authority had been decided and was impervious to reinterpretation or renegotiation. For Bakhtin, active engagement is essential for the assimilation of any discourse, thus by presenting ours as authoritative, we had unintentionally prohibited any possibility of its internal acceptance by others.

At this point it is important to note that this is not a statement supporting cultural relativism. Our pedagogical aims were based on current theory and research from across the globe. However, it is true to say that the particular 'behaviours' that we perceived as hindering the development of our pedagogy were biased. Furthermore, without a sufficient exploration of the place of these behaviours within a differing ideological framework, we had no idea whether or not these behaviours were seen by participants as fostering the very same values that we saw them as preventing. This is especially relevant when considering the concept of respect for adult authority, which is central to the value system of Thailand. Some may argue that we were justified in attempting to lessen the gap between expectations, if only to avoid confusion for the child. However, the truth is that without first exploring the place of this behaviour in the value system of educating small children in Thailand (or our own preconceptions of this concept) we had no hope of engaging in a sufficient enough dialogue for either side to understand the others perspective, let alone develop any motivation for behavioural change.

Nonetheless, it would also be erroneous to conclude that a more cohesive pedagogy was not achieved. However, it was the process of amalgamating the two existing Pre- Nursery classes that appeared to be the more effective stimulus. Although unsuspected at the outset, this process engendered a much closer self analysis amongst the six members of the Pre-Nursery and subsequently something much closer to genuine dialogue was achieved. Activity Theory may offer a possible explanation.

Supporters of Activity Theory, such as Engestrom (2001) and Daniels (2001) would argue that the cultural assumptions, outlined by Bohm, are not only found in individual minds but also become embedded within the tools and artefacts (including rules and traditions) used by 'Activity Systems' (Engestrom 2001, p. 133) such as schools to recreate their underlying norms and values. Thus, it may be that in order to achieve enduring change in any assumption one must also promote change within the tools and artefacts that reproduce those assumptions. Furthermore, reflection on the particular socio-cultural origins of tools, artefacts, rules and traditions may facilitate the self knowledge necessary for open minded dialogue. It was exactly such active participation in the development of new 'tools and artefacts' that occurred during the transformation of two separate Nursery classes into a single Nursery unit.

The organizational implications of creating a single Nursery unit demanded the examination of every aspect of practice, even the most trivial. This detailed analysis of habitual routines such as registration, snack time, staff organization and staff breaks encouraged the creation of new rules and traditions. This in turn, necessitated the production of new tools and artefacts; for example, new organizational rotas, observation schedules, planning documents, reporting and feedback formats and 'work stations' for both children and adults. Through the process of devising new tools and artefacts it became easier for participants to unpick some of the reasoning that lay underneath the old 'rules and traditions' and their contingent nature became clearer. Consequently, every single participant was forced to question some of the assumptions underlying their practice and something

more akin to genuine dialogue was achieved. The implication of this conclusion, however, is that a major overhaul of all rules, traditions, tools and artefacts may be the only way to encourage the self knowledge underlying genuine dialogue. This would not always be possible or desirable.

Nonetheless, it does confirm the close integration between the material and the ideal within the 'ideological becoming' of an individual (Bakhtin, 1981, p.288) and the necessity to widen analysis of habitual thinking beyond individual psychological functions.

As already noted, the manner of their development necessitates that conclusions gained from the above case study remain tentative. Even so, the reflective process aided the theoretical analysis and understanding of past practice and subsequently prompted further pedagogical initiatives. However, to add validity to these conclusions it would now be beneficial to engage in a systematic data collection as well as data analysis.

UTILISING REFLECTION AS A BASIS FOR FURTHER RESEARCH

To summarize, it appears that intercultural communication necessitates a form of 'genuine dialogue' based upon a reflective self knowledge and an awareness of the pervasive, yet situated nature of one's habits of thought. However, habits of thought are not only psychological but become embedded within the tools, artefacts, rules and traditions through which we organize our cultural interactions. Based upon these conclusions, a pedagogical initiative and research project has been devised wherein genuine dialogue between parents and teachers will be attempted through the development of a collaborative reporting and assessment tool.

The discussion above illustrates that to initiate genuine dialogue both parental and teacher knowledge has to be equally respected. Traditionally however, educational discourse portrays the teacher as the expert and parental knowledge is sidelined as 'other' (Hughes & Mac Naughton, 2000, p. 242). Furthermore, the traditional manner of reporting achievement to parents could, in Bakhtinian terms be regarded as authoritative; the content, terms and language being decided solely by the school with very little chance for parental renegotiation. Consequently, despite academic and political recognition of the importance of parental partnerships in education (Athey, 2007; DCSFb, 2008) one could argue that existing traditions inhibit genuine dialogue. Thus, a decision was made to create a reporting tool with more dialogic potential; a home school portfolio entitled the 'Learning Journey'. To engender dialogue, the artefact being developed had to be one in which neither party could hold cultural hegemony but which allowed both parties to utilise and reflect upon their unique perspectives of the child. Thus, the parental contribution had to focus on knowledge that the school body could not possess. Accordingly, it was surmised that an artefact in which parents shared their knowledge of their child's learning at home may allow a genuine dialogue to commence. A series of focus group discussions ensured that parental conceptions of learning within the Early Years informed both the development of the portfolio and the modified assessment framework necessary to equalize home and school knowledge. Consequently, assessment changed from emphasizing skills or knowledge to exploring how a child engaged with new learning experiences (Carr, 2001; Katz, 1997).

Assessing the efficacy of the Learning Journey in achieving its aims necessitates that a systematic method of data collection and analysis must now be employed. In this respect, although the concept of genuine dialogue remains open to multiple interpretations, the theoretical journey thus far has enabled the establishment of a tighter set of conceptual boundaries that may assist in the categorization of data. In the case of the Learning Journey, the definition of 'genuine dialogue' would be one within which there is a reciprocal dialogue about the child, building on the

contributions made by both parties to create an image of the child not possible with only one, thus creating in Bakhtin's terms a 'hybridized discourse' (1981, p. 272). Thus, both contributions become central to the developing dialogue, rather than one simply being a form of empty commentary on the authoritative discourse of the other.

The research project and Learning Journey remain in their infancy. Consequently many, methodological and theoretical considerations are far from solved. However, the crucial role played by retrospective reflective analysis in its initial development is clear. Without this analysis the theoretical framework underlying both the pedagogical initiative and its corresponding research project could not have been devised.

CONCLUSION

In conclusion, practitioner researchers may be crucial to the informed development of pedagogical initiatives such as intercultural literacy. Their experience and knowledge may be vital in transforming nebulous theoretical conceptions into a working reality. Nonetheless, as inexperienced researchers, devising theoretically informed methodologies (noted as essential by Cole, 1996) by require assistance. Engaging in a retrospective and informal reflection on past practice may nurture appropriate theoretical frameworks to inspire further pedagogical initiatives and research. Certainly, theoretical reflection on previous attempts to instigate practice change encouraged an understanding of the concept of genuine dialogue that would not have been possible otherwise. Furthermore, a heightened understanding that individual and institutional habits of thought inhibit intercultural communication prompted the informed development of a new artefact. This artefact by itself may not succeed in creating the genuine dialogue it aspires to. However, it is hoped that systematic analysis of its development may further inform our understanding of intercultural communication.

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Practical Network Security: An Exercise in Experiential Learning

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ABSTRACT

In the current era of network dependency in government and corporate enterprises it is necessary for managers and professionals to appreciate the crucial importance of applying appropriate network and computer security measures. Traditional teaching approaches can explain and demonstrate these issues but are seldom able to instill the sense of reality involved in tackling real world situations. Such classes are usually constrained by the acceptable practices defined by the policies of the teaching institution.

This paper describes a postgraduate capstone unit developed using principles from experiential learning and reflects on three offerings of the unit. The unit drives the students to make decisions and then explore the consequences of implementing these decisions. It commences with the students developing their own ethical behavior policy and then asks students to design and implement an enterprise network based on a loosely defined case study. Their network must conform to the risk decisions that they have taken and the subsequent security policies that they have developed. The network design is also constrained by equipment and software availability. The added step is that students then experiment with various hacking and penetration testing tools, using them to see how well their network will perform against the risk profiles they have established. All practical work is carried out using an isolated network environment on which a variety of hardware and software is available.

Over the past three years of delivery student feedback has been highly positive with students commenting on a sense of excitement and satisfaction with their learning experience and outcomes. They have internalized the sense of 'victory' that can come from gaining control of a network and recognized the hours of patience needed to be able to do so. As a result they have developed realistic expectations of what needs to be done to create and maintain 'good enough' security in a network.

Keywords: Network security, teaching-research nexus, experiential learning.

INTRODUCTION

There have been many authors (for example, John Dewey, Kurt Lewin, Jean Piaget and David A. Kolb) who have expounded the merits of learning by doing. Amongst many quoted, Sophocles in the 4th century BC is perhaps the earliest on record with his statement "One must learn by doing the thing. For though you think you know it – you have no certainty until you try." This is particularly pertinent in the context of network security as it is at a time of crisis when knowledge must be

translated into action and where errors can be very costly. This and the current state of cyber-security were the main reasons that prompted the development of the practical network security unit, and the adoption of a teaching and learning strategy which would allow students to 'try' and to build up their certainty of action.

Many surveys and reviews of the state of cyber security exist and all paint a very similar picture. For example, according to an online survey of more than a thousand small U.S. business owners (PR Newswire, 2011) "most small businesses lack sufficient cyber security policies and training". In addition the survey showed that some 75 per cent of small businesses do not have a formal written Internet security policy for employees, and of those, 49 per cent do not even have an informal policy. Further, estimates show that 40 per cent of all targeted cyber-attacks in the United States were aimed at companies with less than 500 employees and average financial costs of an attack are close to US\$200,000. Perhaps more alarmingly, "roughly 60% of small businesses will close up within six months of a cyber-attack". There is every reason to suspect that such figures are replicated around the rest of the world, including Australia.

The key findings of these surveys appear to be that small businesses lack even the simple fundamentals: security policies and training. Also, it appears that there is an attitude of denial in regard to security issues that is only changed when one has been subjected to an attack and the ensuing trauma.

A practical approach to teaching can allow a student the opportunity to experience the reality of a situation where they can translate their knowledge into actions and witness the consequences. In this way they can refine their actions and build upon a set of experiences valid for the workplace.

EXPERIENTIAL LEARNING

In 2008 we had the opportunity to develop a capstone network security Master degree unit to tackle these issues. To provide the educational foundations and structure we chose to build our approach on Kolb's Experiential Learning (EL) theory (Kolb & Fry, 1975) because, as network security professionals, we understood the importance of experience in workplace problem solving. EL has been widely and successfully used for some time in many disciplines, for example business and marketing (Lavin, 2010) (Gentry, James W, 1990), and geography (Healey & Jenkins, 2000).

EL, which is a constructivist theory, does have its critics. For example, Kirschner et al. (2006) comment that constructivist teaching methods are unguided and point out inadequacies when dealing with less knowledgeable and inexperienced learners. 'Learning by doing' is not appropriate in all situations or for everyone. However, the students to whom this unit was targeted all had pre-requisite knowledge in the key areas of networking and security. Drawing on EL theory was therefore deemed appropriate and, given the unit objectives, highly desirable.

Kolb defines a model (Figure) the steps of which, in simple terms, are the sequential stages: 'plan, do, observe and think'. These steps form a feedback cycle where new actions are based on experiences gained with prior actions. The four stages can be used to define two orthogonal axes, active-reflective (horizontal) and abstract-concrete (vertical), which can be used to show a learner's preference for perceiving experiences (doing-thinking) and transforming perception into understanding (planning-observing). Measured preferences tend to cluster into the four quadrants and have been used to describe four different learning styles (Kolb D. A., 1984). A learner's style is the result of ability, environment and learning history, and students tend to learn better when this is taken into account while teaching them (Nulty & Barret, 1996). However, it has been suggested that

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intentional mismatch between learning and teaching style can offer long term benefits (Kolb D. A., 1984), (Healey & Jenkins, 2000). The EL model provides a mechanism to do just that.

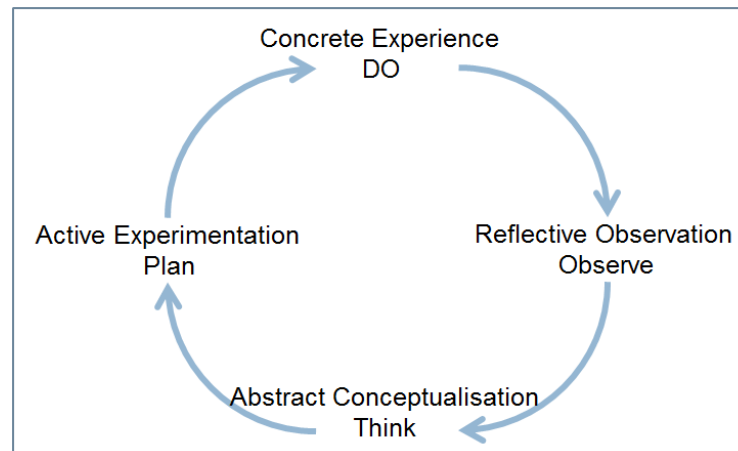


Figure 1. The Experiential Learning Cycle (adapted from (Kolb & Fry, 1975))

The EL model can be applied to any teaching program, from a single lesson to a complete course. The key is to establish a teaching structure which satisfies the cycle (Planning, Doing, Observing, Thinking) and to make sure that there is a clear link between the doing and the thinking (Gibbs, 1988). Gibbs also suggests teaching methods which can be related to stages in the EL model. Other researchers have developed similar styles and aligned learning activities to suit (Honey & Mumford, 1986).

UNIT GOALS

In designing this unit we, as instructors, had identified the formal learning outcomes we sought to achieve, and a set of aspirations relating to student engagement, excitement and overall experience. We wanted students to gain knowledge in how to attack vulnerable networked devices. This learning was enabled by the practical tasks of carrying out such attacks, and also the emotional experiences of doing so without being detected, in particular the exhilaration of succeeding to take control of another's computer, balanced against the tedium of using the pathways to achieve this. This work was intended to develop understanding of why people hack networks, an activity that is not always for pure financial gain. Knowing how attacks are carried out, as well as their consequences, can offer great advantages when trying to develop network defenses; and knowledge of attack tools can be used to probe for weaknesses in any implemented solution upon owned networks. The penetration test is a powerful exercise in identifying potential weaknesses which must be accounted for in a risk assessment, and it developed into a key activity within the unit.

Formal Learning Outcomes (ILOs) are a requirement for all university courses and are outlined in the unit description given to the students. We defined three broad objectives covering the gaining of foundational knowledge, technical knowledge and skills, and professional skills.

The foundational knowledge we wanted the students to gain was centered on understanding the major security risks associated with a corporate network and the policies used for assessing risk. Additionally, understanding the implications of one's actions and the expectation of ethical behavior underlay the entire unit.

The technical knowledge and skills covered the learning of how to defend and to attack networks. A security professional will need to evaluate and apply ethical scanning techniques to a company

network to gather information about potential vulnerabilities. To be effective in this they must have skills in interconnecting and configuring network hardware, the routers, switches and firewalls that make up their network. Having developed and implemented solutions, they then have to be able to test and verify the new operational characteristics. Being able to target exploitation tools at identified network vulnerabilities and understanding how the tools work and how to defend against them are skills that give student and professional alike the power to do good or bad things. It is here that ethical behaviour needs to be demonstrated in action.

The professional skills necessary to work in this area are generic. It was considered important for students to be able to work independently and collaboratively, and to demonstrate the reading, writing, listening and speaking skills required to undertake research. Given the multicultural makeup of the typical workplace in Australia it is also essential to be able to communicate in different modes, to diverse audiences in written and spoken English. These outcomes defined what could be a very sizeable task to be contained and managed by the instructor throughout the semester.

THE UNIT STRUCTURE

The first class was a special case and started with an introduction to the unit. This was when we discussed the semester's work, the case study, ethical behavior and risk analysis. Even though student work happened in an isolated network environment, the ethics discussion covered the general attitude of a professional to the industry and of society as a whole. The discussion culminated in a task to develop a short statement of ethical behavior which all students and teachers agreed upon and signed. Only after this had been signed did we allow the students to start on the practical work in earnest. The second task was that of risk analysis which was highly coupled to a realistic case study of a small to medium sized enterprise, its business, aspirations and current network resources (figure 2). The case study documentation was deliberately 'inadequate' making it essential for the students to research missing information through questioning the instructors, who acted as the business clients, and through whole-of-class discussion. The major goals of the unit were met by the students developing a design, documentation and an implementation of a secure network solution for the case study. There was also some freedom to pay more attention to a specific aspect of security which may have been of interest to them, or of relevance to their professional work.

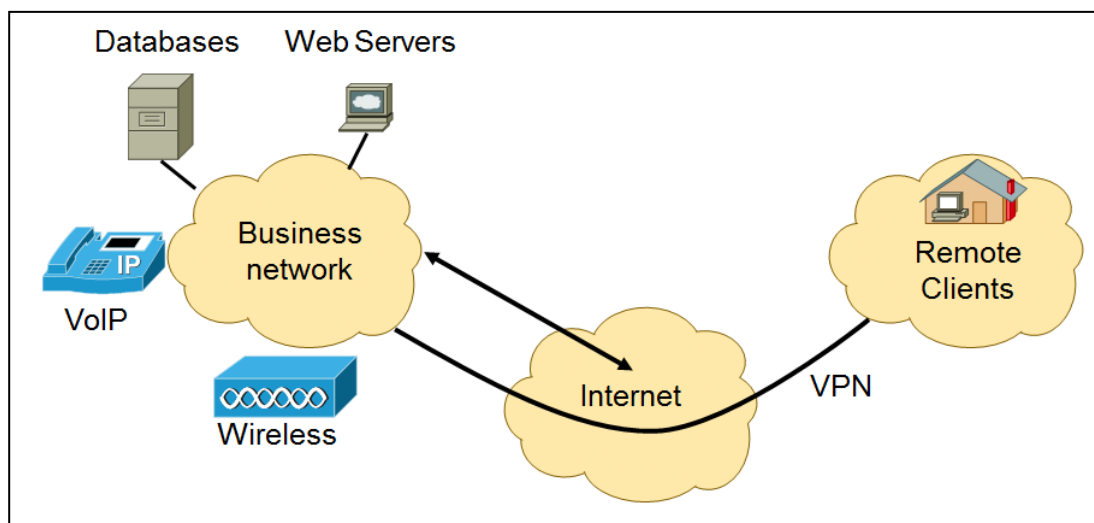


Figure 2. Typical Components in the Case Study

Coupled to the case study was a set of problems which drove the EL cycle and was designed to last for, at least, the first half of the semester. Each problem required the students to plan and conduct various activities, many of them laboratory based. This is where the concrete experiences happened, as students could experiment to create situations that would result in serious consequences in a real business environment. Students maintained log books and wrote discussion forum entries to reflect on their activities and the whole class met once every week to discuss and further reflect on what had been done. Reflection led to thought and deep understanding of attack vectors and scenarios, and this prompted refinement and additional planning exercises to maintain the cycle. As semester progressed the problems flowed allowing students to develop a high level of skill in both attack and defense.

One of the key skill sets students started to build was that of penetration testing, as some of the problems required them to use computer hacking tools. By performing basic penetration tests they learned to identify, evaluate and exploit weaknesses and came to understand how certain important tools operate. We ran a practical test at the end of semester which was organized as a 'treasure hunt'. Secrets were placed throughout an unknown (at least to the students!) network and everyone had the opportunity to demonstrate their knowledge and proficiency with the tools that they had studied by trying to retrieve the secrets.

To summarize, over the course of the semester the students worked through the learning cycle engaging in activities in the following areas:

- Preparation of the Ethics Statement
- Risk Analysis
- Penetration Testing
- Exploiting Weak Devices
- Designing Firewall and Access Control Solutions

The order was significant but the time spent on each topic depended on the student's level of engagement. We guided the students towards the learning objectives and gave them sufficient time to gain a reasonable level of depth in their discussions and subsequent understanding. When the basic tasks had been completed, and if there was sufficient time remaining, student groups could choose to focus their attention on a specific facet of the case study network. Some of the possibilities taken up were: Intrusion Detection and Intrusion Prevention Systems, Virtualization/Cloud Issues, Latest Exploits, Wireless Security and Web Application Security. We also encouraged students to look into IPv6 issues, as these are very important for future networks operations. The capability for using IPv6 was available in the laboratory.

ASSESSMENT

This method of teaching an experiential unit does not afford itself to a traditional examination. Instead, we chose to assess items used and developed by the students throughout the semester, along with their solution to the case study.

There were six elements to the assessment of the unit. Some were individual, some group based and some were individual but heavily influenced by the whole class.

The first assessment item was the student's diary or laboratory work book. This was used to form the basis for class discussions and for chat forum entries. It was also a key resource for the practical

penetration exercises held at the end of the semester. The second was the student's participation in the discussion boards (chat forums) which were essential to allow a class-wide sharing of activity and information and in which all students were expected to participate. In both of these we looked for a record of reflection and practice which showed a depth of appreciation of the activities and experiences undertaken. Also, we looked for indications of strength and leadership to reward those whose contributions had benefited others in the class. Both of these items were considered in parallel with the student's in-class participation and although they were of an individual nature they were strengthened by the whole-of-class interactions.

Individual work reviews, in the form of presentations to the class, were held towards the second half of the semester to allow students to give each other feedback on work done or on topics of special interest. This peer assessment exercise was conducted during semester which for some, especially the overseas students, seemed to provide reassurance. The three assessment items discussed so far amounted to 30% of the overall assessment.

The most significant assessment items were the risk analysis and security document, and the practical implementation of the key points in the risk assessment. This was group work where we looked for use of a standards based approach and a clear mapping between risk and implemented mitigation. Students delivered a working solution implemented on the laboratory equipment and we used the same techniques against their networks as they had been experiencing all semester, to identify any weaknesses in their solutions. Groups were made up of two to five students depending on class size and social dynamics. We did adopt a scaling factor when comparing a large group with a smaller one. These items amounted to 50% of the unit assessment.

The final item was the penetration test, an individual exercise worth a total of 20% of the unit assessment. The purpose of the penetration test exercise was to allow students to demonstrate the use of network mapping tools on an unknown network to profile any located systems and rank them in terms of vulnerability, to use remote exploit tools to take control of weak systems, and then to capture certain (fairly obviously located) secret files. Students were then required to describe relevant fixes to any discovered weaknesses. This test captured much of the essence of the semester's practical work and was a way students could demonstrate a clear understanding of attack and defense mechanisms.

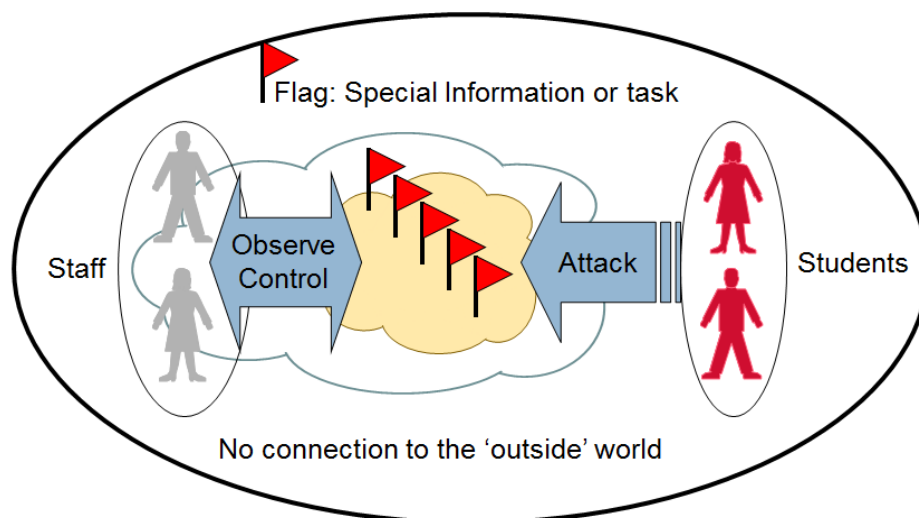


Figure 3. A Schematic of the Penetration Test Exercise Setup

Each student was allocated to a computer connected to one of a set of interconnected Local Area Networks (LANs). Scattered throughout these networks were computers with various insecurities containing secret files. Figure 3 shows a schematic of the test setup. We were on hand to make sure the test ran smoothly and observe the students throughout, so we were in a position to give feedback when the test was complete.

EVALUATION AND REFLECTION

One of the most rewarding aspects of teaching this unit has been conversing with the students and feeling their engagement in the whole experiential teaching and learning approach. Given the variety of backgrounds the students came from, the class environment was an interesting 'melting pot'. Students left the unit satisfied from the experience of having had an opportunity to gain some professionally relevant knowledge. These sentiments were borne out in the formal feedback as well as through conversations after the unit had completed.

Table 1. *Student Evaluation of Unit*

	Question	Mean	S.D.
1	The unit was well taught	4.5	0.6
2	The unit addressed the learning outcomes stated in the Unit Outline	5	0.0
3	The criteria for each assessment component were clearly identified	4.3	0.5
4	There was reasonable opportunity for interaction with teaching staff	4.5	0.6
5	I was given useful feedback on my assessment work	4.5	0.6
6	The unit requires a reasonable amount of work	4.8	0.5
7	This unit provided a good variety of learning experiences	5	0.0
8	The unit stimulated my interest in the subject area	4.8	0.5
9	I gained a good understanding of the subject matter	4.5	0.6
10	I enhanced my skills in this unit	4.8	0.5
11	The structure of the unit has helped me to develop the ability to work independently	4.5	0.6
12	I have developed skills needed by professionals in this field	4.5	1.0
13	In general, I prefer the structure of this unit to the standard lecture/tutorial format	4.8	0.5
14	This unit lived up to my expectations	4.5	0.6
15	Video conferencing did not have an adverse impact on my concentration levels during sessions	3.8	1.3

At the end of semester the students were asked to give feedback on the unit in written and multiple choice formats. We were keen to know how the students rated their experience of a delivery format different from that used in other units in their degree, and to learn from them any aspects they thought we could change. We also wanted to know the impact of the teaching methods and whether or not the level of flexibility was perceived as useful. Table 1 shows the results from the multiple choice format questionnaire where questions were marked from 1 (strongly disagree) to 5 (strongly agree). The last column shows the standard deviation of the result (labeled S.D.).

The first five questions addressed general matters regarding the unit and students were asked to make sure we had met certain basic operation criteria. Question 3 highlighted our experience of the complexity of developing and documenting clear and effective assessment criteria.

Questions 6 and 7 addressed our concern about the workload given the flexible nature of the content and the students' observed enthusiasm for practical exploration. To date, every student taking the unit has been extremely enthusiastic in challenging themselves above and beyond our original expectations. Some of our students were actively working in related fields and felt a high degree of motivation on the basis of what they had observed at work. Other students followed these examples and gained greatly from the experience. Friendly rivalry between groups and campuses seemed to further enhance motivation and learning. Even though 'hacking' was not the aim of the unit students found the idea stimulating as was observed in laboratory sessions and in the discussion forum comments of those who successfully located and used a current exploit on a secured lab machine. Despite any concerns we had about the possibility of overloaded students they thought both flexibility and workload were appropriate.

Questions 8 to 12 addressed student perception of how much they had gained from the unit; all questions scored well indicating a high level of satisfaction.

Question 13 essentially allowed us to contrast the EL teaching approach to more traditional methods in use within the school. For many of our students this was the first taste of experiential learning they had had. Of all the questions this was the crucial one regarding acceptance of the EL method.

The cross campus nature of the unit forced us to make use of video conferencing facilities for the weekly discussions. On occasion it was possible to have facilitators at both campuses to animate the discussions but generally the facilitators were at the same campus. Students had become used to video conferencing from other lecture courses, but found the discussions difficult, as evidenced by one comment: "Group interactions difficult with video conference". Question 15 scored the lowest feedback of all questions asked. The standard deviation (1.3) was the largest of all questions, indicating that there was a large range of level of satisfaction. From the instructors' perspective it was difficult to engage students at the other end of the video link if they were tired or uncommunicative. The dynamic depended very much on the individuals, and the class ran much more actively when there were students able to act as surrogate facilitators in the absence of an instructor. Having said this, and despite our concerns, the use of video conferencing did not adversely affect the running of the unit; it merely increased the level of challenge for both lecturer and students.

Student formal comments

The written feedback gave a little more insight into the students' thoughts and feelings about the unit. Students were asked to respond to three questions:

1. What did you like best about this unit?
2. What did you like least about this unit?
3. What changes would you like to see incorporated into the unit?

For the first question there was a range of responses. One student stated: "The freedom to explore"; another that: "The autonomy of being allowed to focus on personal areas of interest was refreshing." Others were of a more general nature, for example: "Good interaction between student and staff"; and: "Well taught unit which was fun". Other responses made it quite clear that the focus on gaining practical skills of a nature usually not found in a traditional university class (i.e. computer hacking) was appreciated and understood for its ethical value, with comments such as: "The practical nature of testing and learning skills which would otherwise only be available through

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less formal means". The value of gained experience was also evident, as in the response: "Developing Real World skills which can be demonstrated to an employer and are imperative in modern day computing". Perhaps the most relevant answer for the EL approach was seen in the response: "Structuring knowledge in a manner which aims to improve overall system security and maintenance", which suggests the reflection/insight component of the EL cycle had been appreciated during the semester's activities.

Surprisingly there were no responses to the second question but there were, however, some interesting constructive comments reported for the third question relating to the difficulty of adapting to the EL process. The discipline required for the necessary self-directed study was clearly noted in one student's feedback: "Sometime I felt lost in my self-study." It may be that this level of uncertainty could be addressed with more frequent discussion meetings and closer attention to individual student learning styles.

ADDITIONAL OBSERVATIONS

Having students from a variety of work experience levels has added benefits to the intended skill sharing. Some students were studying and working in the IT industry at the same time and provided an extra dimension to the class, as they contributed experience and situational knowledge from their work place. This both added to the discussions and provided a clearer focus on the realities of the work place. It was also an interesting catalyst for students deciding on a focus area for the unit's tasks.

The class, group and individual spread of problems allowed different leaders to step up when their experience or interest in a problem had been the best match. We saw this flexibility work positively in encouraging participation and broadening understanding. Students with industry backgrounds were the first to take the initiative for some activities and set a benchmark that others then tried to match.

The team work required to develop a functioning security implementation, moreover, engendered a healthy spirit of cooperation and competition. Students demonstrated a great ability to share and work together as a whole class in solving problems. Some students were more accustomed to taking a less proactive role than others, but it was apparent that contribution to these activities became a matter of pride for all students.

The classes consisted of a combination of local (Australian) and overseas students. Typically, all had been exposed to the Australian culture and education for long enough to understand how it works. However, overseas students could find it very challenging to engage in the discussions and could be reluctant to talk about the work they had done, especially if tasks had not worked (even if correctly so).

The use of discussion forums proved essential as they provided a means for sharing the results of what had been accomplished in a timely manner and also allowed the conveyance of important information between all students. Additionally, they provided remote engagement opportunities between students and instructors and allowed discussions and reflective activities to continue long after classes had finished, especially after normal business hours. It proved essential for the instructor to keep up to date with what was taking place to follow activity, and provide contributions and feedback when necessary. This component of running the unit could be very time consuming and required a well-managed process.

One noteworthy observation was that members of the same group would defer to their partners in making posts to the discussion forum. Even though it was quite clear in the unit requirements that each student was required to make posts, some still did not manage to meet the minimum number (we suggested a minimum of one per week).

Students also used a forum for other practical purposes, for example, laboratory change control. Whenever a student made a change to any of the laboratory equipment they added an entry to the relevant campus change control forum. A student coming in to the lab simply needed to look at the latest change detail, otherwise they risked having their own work or that of another student or group jeopardized. There was a very fast learning curve associated with this activity!

Even though activities throughout semester focused on knowing how and why things work when it comes to penetration testing, students seemed to identify certain personal challenges such as how to break into a system using the most recent exploit possible. In some cases students took as much time as needed to use the most recent exploits on a well patched and secured system, almost as a rite of passage and as part of some healthy competition with their peer students. The novelty of hacking with this much focus did eventually wear off; however, as assessable unit activities became more pressing!

The penetration test exercise was basically a demonstration, under test conditions, of the practical skills gained with specific attack tools during the semester, and it was entirely open book. The students, however, tended to become stressed over it, because it was a test of a form they had not encountered before. Throughout semester students asked for reassurance about the test even though they had been given a thorough description of how it was to take place and could see all associated criteria. When the actual event occurred they rose to the challenge and in fact wanted to do much more than was required or than time permitted. We saw this as an indication that the teaching approach had been both accepted and successful.

CONCLUSIONS AND FUTURE CHANGES

The purpose of this paper has been to describe a postgraduate unit in network security where ethical practice, risk assessment and mitigation, and practical attack and defense activities are learned through an experiential learning approach.

Over the three years this unit has run we have received very positive feedback from the students. The basic goals of the unit have been achieved in that we have seen a very high level of technical outcome in all student submitted work. By the end of the unit students have become accustomed to the teaching approach and have demonstrated an excellent capacity for self-directed learning. They learned the ability to reason through the complex processes of risk analysis, and they developed working security solutions on their choice from a range of available technology. The unit structure also enabled the development of group skills. By working with colleagues, students were able to share their knowledge with each other and hence participate in a greater range of experiences.

As instructors we found that 'getting the criteria right' for each assessment was not a trivial exercise. This needed to be done prior to running the unit, and the effort put in at this stage yielded results, as all assessment criteria were given to the students at the beginning of the unit in order to guide their self-directed learning.

The experiential learning concept frightened some students who were familiar only with the more traditional lecture model of university education. However, after building a trust relationship between instructor and student we saw the focus move to the learning that was happening and

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away from the fear of an open structured teaching method. The basic problem was that the normal assessment markers (assignments and exams) were not there to provide summative feedback, or, to put it another way, marks in the bag. With the exception of the in-class presentation exercise, in-semester feedback was formative and some students experienced insecurity.

We have seen firsthand that enthusiasm is contagious, especially when working through the practical penetration testing exercises. We have also seen clearly the sense of achievement and pride that students gain when they have successfully 'hacked' into another computer particularly when they have used a current exploit on an up-to-date system. The fact that students use tools usually outlawed in most workplaces (particularly the university) adds a little extra spice for 'danger' and is exciting even though they are very clear about their ethical responsibilities.

However, there is one objective that we cannot evaluate. The real experiences may well be had in a time of crisis when their company network is subjected to a cyber-attack. We have taught this unit in a belief that giving students certain experiences will help them in the workplace; and it is our hope that the learning has offered sufficient realistic experience to allow a greater level of awareness and preparation to occur to reduce the chance of an attack being successful, even in that critical workplace event.

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The Importance of Academic and Social Integration in Higher Education

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ABSTRACT

According to Kuh, Kinzie, Buckley, Bridges and Hayek (2006), students' pre-college experiences as well as "where and how they attend college can all make a difference in their chances for obtaining a baccalaureate degree or another postsecondary credential" (p. 17), and, of course, to their overall academic achievement. When students leave school and enter into higher education, some make the transition relatively effortlessly, while others struggle. There are many factors that affect this transition and the students' attitude towards their new learning environment. Teachers, the size of the classes, the nature of student feedback and "the level of student effort and engagement" (p. 5) all affect both the quality of undergraduate education in general (Gibbs, 2010), as well as the higher education institutes (HEIs) or colleges providing the education and the students themselves. This means that both academic integration and social integration "influence students' overall performances and affective responses to the college experience" (Kuh & Love, 2000, p. 197). If research conducted in higher institutes is able to reveal the typical barriers that students face, measures can be taken to ease student transition and to accelerate both social and academic and social integration. This paper discusses some of the typical barriers that first year students faced in a case study done in the Arabian Gulf.

Keywords: Academic and social engagement, academic literacy, student engagement.

INTRODUCTION

Students who feel that they cannot adjust to their new academic environment academically or socially are at risk to get poor grades, feel maladjusted and at worst may discontinue their studies. However, if this matter is tackled at an early stage, in the students' first year as undergraduates, it may help them to overcome the hurdle of transition from school to college both internationally and in English medium colleges in the Gulf, where the current study takes place. The study focuses on first semester undergraduate Arab students studying engineering in the Arabian Gulf region in an English medium environment. The main constructs to be investigated are students' academic integration and their social integration. Both of these constructs are related to student success and to student retention, so they are important not only to students in tertiary education but also to the providers of the education at this level. Young men and women from the region tend to pursue college level studies both abroad and in their home countries. Although recent statistics are not easily available, according to an estimate in the Arab Student Magazine (2009) from the Ministry of Higher Education concerning the Gulf region, some 78,000 students go abroad annually to study at all levels, the US and the UK being the most preferred destinations for Emiratis (Gulf News, 2011,

September 1). However, most students chose to study in the many English medium colleges in Gulf countries, such as the United Arab Emirates (UAE), Qatar, Kuwait and Saudi Arabia.

An added aspect to consider is the students' overall attitude towards their studies, as it affects both their academic and social integration. Most of these countries have obtained considerable wealth due to the oil industry and it is distributed among the citizens of these countries. This has led to implications of the existence of a 'rentier mentality' to imply that, as a result of the distribution of wealth, the connection "between work and education and income and reward" (Minnis, 2006, p. 976) is not clear, due to the existing financial assets that many of the citizens have obtained. However, there are also strong opponents to the idea of the UAE being a rentier state, such as Burden-Leahy (2009) and Hvidt (2011), who claim that the country is aiming for "a production-oriented developmental model" (Hvidt, 2011, p.89) and making the effort to "establish itself as a nation which will last beyond the extraction of oil phase" (Burden-Leahy, 2009, p.533). Nevertheless, the situation does not necessarily enhance a student's motivation, the need to become a high academic achiever, or the will to become the kind of employee who improves the society through his or her own work initiative. Bearing this in mind, students in HEIs coming from such backgrounds may require additional assistance in academic and social integration, depending on family wealth and role models from home, to be able to seriously engage in their studies in HE.

Moreover, as tuition is free for many students in these countries even at tertiary level, student success is within the interest of not only the students themselves but also the parties who finance the education, which are mainly the government and major private companies. This is due to the fact that successful students do not usually interrupt their studies (Dodgson & Bolam, 2002) and high retention levels are important to providers of education "because of the reputational benefit that accrues from the success of their students, and because of the economic stability that a predictable student base engenders" (Yorke & Longden, 2004, p.1).

The objective of the current case study of 20 male students was to identify issues of academic and social integration which Arab students face when they study at tertiary level in an English medium environment. Academic integration was investigated by examining the students' written work over a semester in the first year of their studies as well as by monitoring their behavior in the classroom through video-recorded observations. Social integration was observed by monitoring the students' attendance level and by the amount of times they contacted the lecturer during the 16 week academic literacies course. By identifying the issues and by then providing the students with the means to deal with them, it is hoped that levels of the students' academic success and retention can be increased.

ACADEMIC AND SOCIAL INTEGRATION AS A MEANS OF ENHANCING THE STUDENTS' COLLEGE EXPERIENCE

The independent nature of college studies imposes challenges on students who are used to a more structured and teacher led learning environment at school. According to Kuh, Kinzie, Buckley, Bridges and Hayek (2006), students' pre-college experiences as well as "where and how they attend college can all make a difference in their chances for obtaining a baccalaureate degree or another postsecondary credential" (p. 17), and, of course, to their overall academic achievement. Some schools do focus on providing students with the basic tools for academic achievement, and educators assume that students transfer learned skills from one context to another (Barnett & Ceci, 2002). At college level recent studies show that factors affecting student success include student behaviors and institutional conditions, which both also impact student engagement (Kuh et al,

2006). Institutional conditions include matters of academic support, the campus environment and available funding (Kuh et al, 2006; Gibbs, 2010; CSFI, 2010). Other factors are students' active involvement with learning, relationships with the faculty and relationships with peers (Ullah & Wilson, 2007). Conversely, as Hanson (2006) points out, factors impeding student success are academic failure, the teacher-learning-grading process, lack of financial support and lack of knowledge about the college process.

In the current study the students study in English medium environments and the faculty are often foreigners, so within the college environment the situation is similar to that of international students, for whom teaching styles, the ability to communicate in English and an understanding of the way they will be assessed (Lebcir et al, 2008) were further identified as factors affecting academic achievement. It can, therefore be concluded that prior studies indicate that both academic integration and social integration "influence students' overall performances and affective responses to the college experience" (Kuh & Love, 2000, p. 197), in other words, their academic achievement and whether they gain the required degree that they set out to study towards or not.

Academic Integration

Students' academic integration is affected by their goal commitment (Tinto, 1975; Kuh & Love, 2000; Land, 2001) which involves matters such as their grades, personal development, enjoying studying the subjects at college and identifying themselves as college students. Colleges with English medium instruction have spread in the Gulf region in the past two decades (Coleman, 2006; Findlow, 2006), and students experience transition problems not only because the language of instruction prior to college, in public schools in the Gulf, is predominantly Arabic, but also because of the different expectations that the students themselves and the instructors have of learning at college level compared to school. The focus on learning in public schools has been to pass final exams as opposed to acquiring the necessary skills to process new information. This is why it is necessary for the students to overcome their preconceptions about knowledge being important for its own sake, as opposed to being a "tool for analysis and critique" (Badke, 2002, para. 13) early on in higher education (HE) studies. It is a tendency which is reflected in the way the students organize their thoughts in writing and when presenting information orally and as students typically demonstrate their understanding and learning through written assignments, it is important that higher education institutes (HEIs) focus on improving non-native speaker (NNS) students' English language skills and academic literacy skills, especially in countries where NNSs study in tertiary education via the medium of the English language.

Academic literacy skills are defined by Lea and Street (1998, 2000, 2006) as academic literacies encompassing academic socialization and study skills. Acquiring these skills will ease the students' transition from school to HE (Hassel & Giordano, 2009). Apart from being useful skills for students to acquire initially, academic literacy skills can be seen as a part of a wider set of information literacy skills necessary for a person to function in the modern society. In their classic study of the impacts of higher education, Pascarella and Terenzini (1991) also identified such skills as the generalized skills of, for instance, critical thinking, writing and interpersonal communication, as being of assistance to students in the workforce after graduation. More recently, the need for the overall development of such skills has also been recognized in higher education (Lebcir, Wells, & Bond, 2008), with regard to both students studying in their mother tongue, as well as to those pursuing their studies in another language. However, a recent study done in the Gulf shows that if students are challenged by academic literacies, they may feel marginalized within the academic community that they are a part of (Howell, 2008), or they may feel that they have not become a part of the academic community at all. Researchers agree that students in the United Arab Emirates (UAE) will benefit from instruction

in academic literacies and from a stronger sense of student involvement at a HEI, be it in the form of instruction, such as problem-based learning (Bielenberg & Gillway, 2006), a pedagogy of multiliteracies and providing the students with a feeling of inclusiveness and respect (Picard, 2006) or by facilitating the students in achieving a strong identity in the community of practice which they want to become a part of (Howel, 2008). It is therefore clear that academic literacy skills enhance academic integration, as well as social integration into higher education to a certain extent.

Social Integration

According to Jones, Turner and Street (1999), learners wish to establish their identity within the community of a HEI in order to "improve their chances of fulfilling their academic potential" (p.39). The process starts at school and the socialization process that pupils go through in school, as well as the way in which they negotiate their identities in e.g. teacher-student interactions, determine, according to Cummins (2008), the "extent to which students will engage academically and gain access to the academic register of schooling" (p.76), in other words, the level of academic and social integration. Tinto (1975, 1993) and Land (2001) define social integration as the amount of personal contacts and interactions students have with their peers and with academics, whether the students are motivated or enjoy being at university. This can also be looked at from the point of view of student attendance and the extent to which students participate actively in class, all matters related to student engagement, which in turn is defined by Barkley (2009) as the intersection of motivation and active participation. Chapman (2003) and Martin (2006) agree that factors showing student engagement "depict students' willingness to participate in routine school activities, such as attending class, submitting required work, and following teachers' directions in class", (Chapman, 2003, para. 3) and the "students' energy and drive to engage, learn, work effectively, and achieve to their potential" (Martin, 2006, p. 73). The students in the current study are first year HE students in an engineering college, and in their study of a similar cohort of students, Amenkhienan and Kogan (2004) identify social integration factors such as individual effort, peer interaction and faculty contact as having a positive impact on engineering students' academic performance.

A further matter to consider is the interface between students and faculty in college in Gulf countries, especially as many of the instructors in the Gulf are foreigners, though more Gulf Arabs are being currently employed as instructors at all levels of education. "Knowledge of a student's culture of origin and cultures of immersion is needed to understand a student's ability to successfully negotiate the institution's milieu" (Kuh & Love, 2000, p.201), in other words, for instructors to be able to assist students in integrating into the college environment. It has been pointed out that foreign instructors should respond to the students in view of the respectable position that they enjoy in society in the UAE and try to avoid "compartmentalizing students' intellectual, emotional and ethical lives" (Harward, 2007, p. 9). Instead, they should appreciate that the Arab students' "sense of well-being is through affiliation" (Barakat, 1993, p. 19) to their families, friends and the community, in which the HEI also has a role of its own. Increasing this sense of affiliation will further improve students' social integration into academia.

Differences observed in the academic and social integration of success and weak students

The 20 students in the current case study fell into three groups based on their grades in the first semester at college. The groups were defined as the successful students (six students), average students (ten students) and weak students (four students). It was clear that both academic and social integration affected their academic achievement and retention, as profiles of the students' literacy skills and levels of engagement emerged from the data gathered, which consisted of their

written work and instructor and video observations of student behaviors. Due to a solid system of identifying at-risk students and the provision of necessary support during the mid-term, only one of the weak students actually eventually withdrew from the college, while the remaining 19 students continued to pursue their college level studies.

The results of study showed that both academic and social integration occurred when students had understood that the expectations posed on them in college were not the same as those at school. The successful students' integration can be looked at from four aspects; how they approached the tasks, how they organized their time on task, how they approached the actual writing and how they behaved after feedback on their writing. This group of students brought good study habits from school; they were active in class and accepted that the amount of independent work required at college level is substantial. They found out as much as they could in advance by studying available task descriptions and asking the instructor for more information when necessary. They were also realistic about the amount of time needed to complete the task, spending a minimum of one hour per day on homework, and they usually submitted their assignments before the deadline. Afterwards, they paid attention to the feedback received and, again, asked for clarification, if they felt that they required it.

The average students approached tasks in a similar way, although they did not seem to be as thorough in their approach to the tasks, nor did they always allocate enough time to complete them. The times that they asked for assistance in and out of class were also much less frequent compared to the successful students. A further matter which affected their grades was a higher frequency of disengaged behaviors in class, which meant that the requirements were not so clear to this group of students. In fact, half of them could have pertained to the category of successful students if they had paid more attention during lessons. Contrarily, the weak students demonstrated very passive behaviors in class and seemed to think it was enough to be present. Additionally they admitted to spending a maximum of half an hour per day on homework, which was not enough time to complete the tasks well. Moreover they did not spend time outside class reading the task descriptions very thoroughly, nor did they consult the instructor for assistance prior to handing in assignments not or receiving feedback.

These three profiles of the different types of students demonstrate models of behavior that students can be made aware of in order to improve their academic and social integration. The advantage of doing the case study was that it provided enough detailed, descriptive data to interpret the social realities of the respondents. It also made it possible to handle the information using the iterative processes of reviewing the data over and over again and by providing a means to triangulate the multiple types of data available (Guba & Lincoln, 1994, Brown, 2006, Blaxter et al, 2006). It is to be noted that as the results were those of a case study, the figures are indicative of the case, not statistically significant. On the other hand, often "the force of example is underestimated, while perhaps formal generalization can be overvalued as a source of scientific development" (Flyvbjerg, 2004, p. 228). The students in the current case study were a typical cohort of students on the male campus of the HEI where the study took place, so the results can be seen to reflect the situation with regard to other similar cohorts of male students in the Arabian Gulf region.

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

HEIs exist to provide students with higher education and to produce research. However, one of the problems in HEIs is the tendency to compartmentalize the different segments of students' lives. As Harward (2007) points out, the "paradigm of compartmentalized learning is extended to campus

life: faculty take care of the intellect, student-services staff and coaches handle the rest” (p.9), that is, issues pertaining to students’ emotions and ethics. It seems, based on the results of the current study, that all the people involved in HE should concern themselves with the students holistically in order to assist them in being successful, especially in their first year at a HEI, to ease the students’ transition from high school and other previous learning experiences to HE.

Student experiences on campus are about interacting with other students, faculty and staff and positive relationships enhance learning (Ullah & Wilson, 2007; Connor, 2009; Gibbs, 2010). The quality of these experiences reflects on the HEI, because “from a cultural perspective, when an individual joins a group, interactions between people influence the larger institutional environment and its subenvironments” (Kuh & Love, 2000, p. 198). It is important also to remember, as mentioned earlier, that for Arab students, like the ones in the current study, their “sense of well-being is through affiliation” (Barakat, 1993, p.19) to their families, friends and community. Faculty and staff should incorporate this sense into daily campus life, by becoming more culturally aware, thus enhancing the notion of mutual respect. As Rupp (2009), stated, in his discussion on American university education in the region,

The Middle East has its own unique region with ancient cultures and traditions. These cultures and traditions have much to offer the world and we should be cautious of the role American universities may have in potentially altering or filtering how students from the Middle East view themselves and their national identities (p. 12).

Students have a need for both academic and social integration (Kuh & Love, 2000) in order to become successful. The students in the current study have chosen to complete their undergraduate education in an English medium environment and many of the faculty and staff at the HEI represent cultures other than the students’ own, though more Emirati faculty are being recruited in the HEI. While the institute was modeled on American HE, it is a HEI in the UAE and the students are either Emirati or hail from neighboring Arab countries. If faculty were able to adopt some of the traits that are familiar to the students, such as viewing the students not only as learners but as people as a whole, and behaving as the strong, benevolent tribal leader whose tribe is the group of students in the classroom, both academic and social integration of the students into the HEI is much more likely to occur relatively effortlessly.

In doing the current research, the researcher came across related subject areas and different groups of participants that could also be researched, as well as different methodologies and methods that could be applied to do similar studies. Areas of further research could include research into faculty perceptions of factors affecting academic and social integration, as well as faculty expectations of students’ levels of academic achievement. As for students, their personal goals, the impact of the family on their studies and the contribution which the students feel they need to make to society in view of the strong current trends in increasing the amount of Emiratis with higher education and in the workforce could be investigated. A comparison could also be done to find out whether the students profiles are compatible with those of students in other countries.

CONCLUSION

The aim of this study was to discover if there are any differences in the academic and social integration of students based on their academic achievement and whether retention can be enhanced by raising the students’ about what is meant by academic and social integration at college level. The main differences between the three groups of students were due to the way the students approached learning in HE. The successful students accepted that studying at college was different

from school and were prepared to put in the time and effort to complete the assignments at a high standard. In order to be able to do this, they were also active and motivated in class to ensure their understanding of what was required. In other words they demonstrated high levels of engagement. The average students seemed to be on the right track but they were not prepared to put in quite as much time as the successful students. Moreover, this group of students demonstrated the most disengaged behaviors in class and lacking focus, they did not manage to fully complete the required assignments to a high standard. The weak students were faced with the problem of “the unlearning of preconceptions” (Ausubel et al, 1978, p. 372), treating HE as a continuation of school and refusing to see any differences in the expectations posed on them by HE instructors compared to teachers at school. Disillusioned by poor grades on assignments in their first semester at college, they did not seek help or advice, but reverted to passive behavior in class. If such students are made aware of the detrimental effects of such behaviors and they themselves, instructors and support staff can identify this early on, they can be assisted and they will become more academically successful, thus satisfying both themselves and the providers of higher education in the region.

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The Need for Greater Scrutiny in TESOL Personality Research

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ABSTRACT

For years, personality has been overlooked as an area of inquiry within the TESOL research community. However, this neglect is not justified as it stems partly from a flawed study that was unable to find connections between personality and second language acquisition. This article attempts to dispel some of the misconceptions about personality's insignificance in a TESOL setting, and calls for a renewed focus on developing an adequate personality instrument that can be used in future TESOL personality research.

Keywords: TESOL, personality, extroversion, scrutiny, acquisition.

INTRODUCTION

It has been suggested that personality plays a relatively minor role in second language acquisition when compared to other individual difference variables such as motivation and anxiety (Dornyei, 2005). It would be difficult to deny that motivation and anxiety are key factors in second language acquisition, yet it might be too early to regard personality as having an insignificant impact. In the Teaching English to Speakers of Other Languages (to hereby be referred to as TESOL) research community, personality has not had much success in establishing a foothold, either on its own or as part of a larger conceptual framework. In a pivotal article lamenting the state of personality research in the TESOL research community, it was suggested that existing research relied on limited testing instruments and researchers who were not intimately familiar with one of the two disciplines in which that research was situated, either linguistics or psychology (Dewaele & Furnham, 1999). In addition to limited testing instruments and researchers who may lack expertise in one or more discipline, the authors suggested that the reason behind the lack of persuasive research in this area is because of a misconception that The Good Language Learner (Naiman, 1978), one of the first major TESOL studies to examine personality, effectively demonstrated that there was no connection between the two areas of inquiry. As the first major TESOL research attempt examining personality, The Good Language Learner's (to hereby be referred to as TGLL) influence was considerable, and its inability to find a connection between TESOL and personality was devastating (Dewaele & Furnham, 1999). According to Dewaele and Furnham, the subsequent void in research can be directly attributed to TGLL's results, yet this void is not entirely justified; assumptions made by Naiman need to be re-examined in light of developing consensus in the field, such as the effect of environment on personality and the suitability of testing instruments in the face of situational pressures. For instance, one area in which Dewaele and Furnham felt TGLL could have improved upon was the nature of its language testing instruments, a dichotomous of Merrill Swain's language activity in which

the teacher recites a reading passage with students only listening, then recites it a second time with students taking notes, and finally students in groups try to reconstruct the reading passage; (Swain & Lapkin, 2000) and a verbal repetition activity. Assessing language poses immense challenges, particularly in relation to an area such as personality, which can be biased towards any number of orientations. Language can be assessed at both global (Naiman 1978) and local (Dewaele & Furnham, 2000) levels, with each involving a myriad of personality biases, limitations, and complications. When testing with the *dichtogloss*, for example, certain personality types might benefit through the inherent biases of the activity (i.e., interacting with peers to negotiate an answer might benefit those high in the personality dimension of agreeableness) and the outcome might be unique to that specific testing method. If a researcher instead examined the number of prepositional mistakes in written academic essays, the biases and outcome would likely be different, possibly favoring the personality dimension of introversion (low extraversion) over agreeableness because of the need for individual discipline and focus when writing rather than the social cohesiveness that is more important when working within a group. The decision whether to assess language at a global or local level has potential limitations that need to be considered when assessing the value of the research. The absence of a result stemming from this one global measure probably should not negate further exploration of the topic with different measures. In addition, it is unclear whether a *dichtogloss* is an adequate representation of language use, as that task is an unnaturally occurring event, only present in a language classroom. There are other language tasks that may be more relevant to actual communicative situations in a second or foreign language environment. Instead of focusing on unnatural language tasks, it would seem to be more advantageous to focus on actual conversational utterances, that are not only generalizable but also probably closer to the intended goal of language students (to see how well someone can communicate, not complete a *dichtogloss*).

One of the central concerns with TGLL is it appears to have overextended itself on several research fronts that it hoped to explore. The intended goal of this study was to determine “what makes good language learners tick” and to identify “what they do” (Naiman, 1978). In the 30 or so years since the TGLL was published, almost all research within the TESOL research community has endeavored to answer these questions in some regard. There have been thousands (possibly millions) of pages of TESOL research that have barely scratched the surface in answering this question in a generalizable way and one can see now that TGLL was perhaps setting an overambitious goal by hoping to answer this question convincingly within the confines of a single study (although understandable since TESOL was a new field of research at the time, whose depth and complexity had never really been explored). The main statistical analysis of TGLL was preceded by an interview stage in which 34 students were asked a variety of questions, such as how they studied vocabulary, how young they were when they first began studying, how environment affected their language learning, and how past language success or failure affected their future learning. While TGLL raised a number of intriguing questions, there did not appear to be a central, focused theme to these interviews, but rather a broad approach of information-gathering. The result is a great deal of information that is difficult to organize into a unified theme. The mixed sample in the statistical analysis is another concern with the study. The study used grade 8, grade 10, and grade 12 students in a single sample and arbitrarily assigned cognitive tasks deemed appropriate to each grade level. Specifically, the grade 8 students were given a truncated version of the International Association for the Evaluation of Educational Achievement (to hereby be referred to as the IEA) French test (Carroll and Sapon 1975) and imitation task, while the grade 12 students completed the most advanced versions of each test, but each test was not calibrated to each grade level. This research design assumes that the relationship between age and language acquisition is a linear one, however

research done regarding the critical period suggests that this may not be true (Long, 1990). Further, the personality of the subjects was assessed using a variety of tests with no history of use within the TESOL research community (before or since), such as Budner's Intolerance of Ambiguity Scale (Budner, 1962), Mehrabian's Sensitivity to Rejection Scale (Mehrabian, 1970), and Hogan's Empathy Scale (Hogan, 1969). Additionally, researchers only used a third of the Eysenck Personality Inventory, to hereby be referred to as the EPI (Eysenck & Eysenck, 1963); the extraversion scale. The authors also invented their own measure of personality behaviors, termed overall classroom personality, encompassing student certainty in hand-raising, student reaction to being called upon without hand-raising, student embarrassment in speaking French, and student affective remarks. Unfortunately, this measure of personality behavior combines multiple dimensions of personality into a single score, with no details regarding validation, making it difficult to use in subsequent research. Further, interpreting behaviors and situating them along a personality dimension can be contentious, and at the very least needs to be explained, and behavior-personality connections rationalized. Finally, the researchers found significant correlations between the overall classroom personality with the IEA and imitation tests (.361, .380), between field independence and the IEA and imitation tests (.311, .247), and between intolerance of ambiguity with the IEA and imitation tests (-.255, -.230). Yet the former correlations stem from an all-encompassing personality measurement that was not scrutinized, while the latter two correlations were among several variables that would have been rendered insignificant if a Bonferroni adjustment had been conducted. Additionally, the authors acknowledged there were discrepancies between what students scored on personality tests (specifically the extraversion and sensitivity to rejection scales) and what investigators observed. This illustrates a need to follow up on this study with further research to see if the results could be replicated, preferably though after addressing the aforementioned issues.

METHODOLOGY

The first major TESOL research attempt to examine personality with clear relevance to Japan, was conducted by Deborah Busch in 1982 (Busch, 1982). Her study attempted to link the extraversion scale of the EPI, a forerunner of the current Big Five models of personality which examined the three personality dimensions of extraversion, emotional stability, and psychotism, to several components of the YMCA Test of English Proficiency (to hereby be referred to as the YTEP) and several components of an oral proficiency interview (to hereby be referred to as OPI). The sample included 185 participants, 80 students from a Junior College and 105 students from an affiliated night school. Results indicated a negative correlation between extraversion and the pronunciation component of the OPI (-.38, $p = .01$) and near significant negative correlations between extraversion and fluency (-.22, $p = .09$) and grammar (-.26, $p = .09$) on the OPI; as well as grammar/vocabulary (-.18, $p = .06$) and reading (-0.16, $p = .07$) on the YTEP. On the surface it would seem that introverts held a slight advantage in terms of second language acquisition, however this is probably an effect of this study's cross-sectional design. The researchers in the discussion section allude to the educational culture of Japan being heavily geared towards introverted tendencies (not much pair work, long teacher lectures, and individual homework assignments from the textbook). Unfortunately, because of the bias in the educational environment, a cross-sectional design likely gives an advantage to introverts. Extraverts, on the other hand, have endured a learning environment for many years that opposes many of their tendencies towards social interaction, so one could reasonably assume that introverts should have had a much more commanding advantage in most measures of language competence. Perhaps a better way to interpret this result would be that despite enjoying at least a six-year learning environment advantage (junior high school, high school, and possibly college, too), the

difference between introverts and extraverts was only marginal. If the design had been longitudinal, this environmental advantage for introverts could have been negated. Further, the validity of the data should probably be scrutinized a bit more. For the OPI, raters presumably based scores on their impression of proficiency, without any quantitative or transcribed evidence to justify their judgments. Categories such as fluency and grammar would be easy to quantify in order to add evidential strength to the results. Yet a rubric is not included in the appendices of the study, so it is difficult to determine the appropriateness of the evaluations. Finally, the inter-rater correlations between judges on the four OPI areas were relatively low (comprehension .63, pronunciation .54, fluency .66, and grammar .61), suggesting a need for increased rater-calibration.

In a study with a relatively large sample size of 855 adults studying languages at the US Department of State, Ehrman and Oxford (1995) investigated whether language proficiency and aptitude correlated with a number of individual differences (such as motivation and personality) as well as with descriptive categories (such as age and sex). Results with regard to personality, as measured by the Myers-Briggs Type Indicator, were not especially noteworthy, with only mild significant correlations between speaking proficiency and the personality measures of intellectual (.23), questioning (.20), intuition (.20), and defiant (.20). For reading proficiency, correlations were seen with intellectual (.20), intuition (.20), and defiant (.21). A secondary personality instrument, the Hartmann Boundary Questionnaire (Hartmann 1991), also found significant correlations between speaking proficiency and not neat (.31), external ego boundary factor (.27), and boundary tool (.25). For reading proficiency, significant correlations were found for not neat (.33), external ego boundary factor (.30), boundary total (.24), and not clear edges (.21). Despite the large sample size, there are some issues that prevent the results of this study from being considered a definitive answer on the issue of personality within the field of TESOL. For one, the researchers used two personality instruments that fall outside of the predominant Big Five personality framework used by dispositional traitists. While the MBTI is used relatively frequently, it is not an ideal instrument in some cases immune to criticism (discussed in the following pages). Further, the language proficiency measures lacked a report of inter-rater reliability, or specific details about each assessment. It is mentioned that assessments were equivalent to the Interagency Language Roundtable and the American Council on the Teaching of Foreign Languages (Omaggio, 1986), but the new assessment probably should still have been assessed for validity, just in case it differed from the assessments it was modeled after. Also, the writers mentioned that this is a unique sample whose results might not be generalizable to more common samples (such as university undergraduates or high school students). They noted that the lack of correlations between some of the descriptive categories and proficiency already demonstrate that this sample behaved uniquely. Taken together, these three factors make it difficult to consider this study emblematic of any TESOL phenomena involving personality.

DISCUSSION

As mentioned, there are a number of issues associated with the MBTI as a personality instrument that sometimes make it less than ideal. An increasing number of studies have voiced concerns over using the MBTI (McCrae & Costa, 1989; Pittenger, 1993). Among the concerns is the originating theory to which the MBTI was based, Carl Jung's psychological typologies, which were in turn based largely on the themes and characters of classical literature. Pursuant to Jung's psychological types, many people are guided by unconscious thoughts and desires, which are very difficult to capture with a self-report questionnaire. Further, the MBTI uses four dichotomous personality scales to classify people as one of 16 types. However, these types often have no qualitative differences from

each other, as well as virtually no interaction effects statistically between the scales, suggesting that these are not legitimately unique combinations of personality traits, but just differences along four independent scales. Also, the dichotomizing nature of the test, in which everyone is one of two types, affects the reliability of the instrument. There is no consideration of degrees, so an individual who is extremely extraverted shares the same designation as a person who is only slightly extraverted and straddles the middle ground on the extraversion-introversion scale. In fact, when one considers error variance, it is possible that an introvert could be incorrectly labeled as an extravert with the MBTI. Also, the four scales of the MBTI do not incorporate sub-factors (such as humor within the extraversion dimension) like other personality instruments (such as the NEO-PIR). With the MBTI, two people could be typed as extraverts but might be very different types of extravert, with one testing highly on warmth and positive emotions, while the other scores highly on activity and excitement. The MBTI only classifies by type and is not designed for capturing nuances in the type data. All of the MBTI dimensions essentially load onto Big Five scales (McCrae & Costa 1989), so it would seem that the Big Five personality instruments are superior in both reliability and validity and should be used in any TESOL research that involves trait-based personality research.

Carrell, Prince, and Astika (1996) also conducted a TESOL study involving personality measured by the MBTI, with 76 Indonesian university students in an intensive English program. The researchers found a negative correlation between extraversion and vocabulary ($r = -.19$, $p = .10$), and positive correlations between introversion and vocabulary ($r = .21$, $p = .07$), judging and grammar ($r = .22$, $p = .06$), and perceiving and grammar ($r = .22$, $p = .05$). Also, when personality types were compared against each other, introverts had a significantly higher mean score than extraverts on a vocabulary test ($F = 3.25$, $p = .08$), first semester grades ($F = 2.99$, $p = .09$), and second semester grades ($F = 5.39$, $p = .02$). The results seem to be largely supportive of introverts; however, there are some concerns with this research. Foremost is that the researchers set their significance threshold at an unusually high level because of a claim that relating personality and language acquisition is so novel, that it warrants a higher threshold to ensure any possible connections were identified. While the researcher acknowledges that personality and language acquisition are infrequently examined in tandem, statistical results should still be scrutinized to the same degree practiced in the research community. There are reasons why a threshold significance level of .05 has been adopted as a statistical benchmark, ignoring it increases the chances of making a type 2 error, while not convincingly reducing the chances of making a type 1 error. Another issue with this study is that no description of learning environment has been provided, even though it is an essential factor in learning. For these participants, language acquisition is a result, at least in part, of their school, program, and teacher. Their learning environment no doubt has inherent biases towards one personality type or another, and over an extended period surely must enhance learning for some personality types and hinder learning for others. Without describing the learning environment and providing some context, it is very difficult to know how to interpret a slight edge in vocabulary for introverts. Finally, there is little information provided regarding the first semester or second semester grades. Much like how environment and personality interact, grade assessments can skew towards personality types, which might explain why introverts seem to enjoy an advantage. The semester grades might have included a large number of writing assignments and tasks that were suited towards individual work done at home. When viewed in this context, the slight statistical advantage held by introverts could actually be viewed as evidence of extravert superiority (much like a basketball team with only 3 players losing by a single point to a team with 5 players). Taken collectively, it's difficult to conclusively endorse this study's assertion that introversion is an advantage when studying a second language.

Verhoeven and Vermeer (2002) conducted a personality and second language acquisition study that involved 213 Dutch elementary school children, 144 native Dutch speakers and 69 non-native Dutch speakers. On the language side, students were evaluated through the prism of Bachman and Palmer's 1996 model of communicative ability (Bachman & Palmer, 1996), which incorporates organizational, pragmatic, and strategic competences. On the personality side, students were observed by teachers in accordance with the Big Five model of personality. Results indicated that the L1 group was superior in all areas of organizational competence (word definition, sentence reproduction, text comprehension, and functional reading), and superior in one element each of pragmatic and strategic competence (illocutionary force and planning, respectively). Also, a number of significant correlations were found for the L1 group involving communicative competence with conscientiousness and emotional stability and with openness for the L2 group. Unfortunately, the personality portion of this research is difficult to replicate because not many details of the assessment were provided. Observing students to assess personality is difficult as many behaviors, especially those involving agreeableness, emotional stability, and openness, are internal and do not necessarily manifest in physically observable behaviors. While some studies have chosen observations of personality rather than self-report questionnaires as the chief method of data collection (Furr & Funder, 2007), it can be arduous and needs a vigorous description in the study to ensure researchers' observations were justifiable. There is very little information provided in this study as to how students' behaviors were interpreted during personality assessments, and the task of accurately assessing 213 students through observation would seem to be a mammoth and arduous task. Further, there is little information provided about inter-rater reliability, which would seem to be essential since the raters are such a central part of the research design. Additionally, there are elements of the study that may not be entirely relevant to some TESOL practitioners, particularly Bachman and Palmer's communicative competence model, and how items such as pragmatic communication, that require the observation of 37 behaviors in defined role-plays, or strategic communication, that rate the degree of hand and foot gestures performed by participants. The former would seem to require an immense amount of observation (in addition to the many personality observations already being done) with 37 observable actions per role-play participant and 213 participants in total. The latter seems to be less relevant in a communicative sense; gesturing with feet is usually not as crucial to communication for second language students as constructing a conditional sentence or conjugating a verb.

CONCLUSION

One instance of personality's inclusion in a TESOL conceptual framework is in the Willingness-to-Communicate (to hereby be referred to as WTC) pyramid conceived by MacIntyre, Dörnyei, Clement, and Noels (MacIntyre, & Dörnyei et al., 1998). In the framework, a series of variables are arranged in a pyramid, feeding into each other, until culminating in a WTC variable at the top of the pyramid. Personality is situated at the base of the pyramid and, as a result, is mediated by a number of other variables, such as intergroup motivation and ethno linguistic vitality, which have a much more direct influence on WTC. The concern with this framework is that it does not offer much quantitative predictability for personality (and other variables). With several mediating variables, it is very difficult to predict how they will interact to culminate in a WTC outcome, making prediction more difficult with the addition of each mediating variable, and diluting the importance of personality in the larger scheme of the model. Further, this perception of personality is static, more so than this framework's perception of anxiety, WTC, and motivation, which seem largely dynamic. As more research suggests that personality is a combination of trait and state, a new conception of personality is needed, perhaps like Gardner's conception of multiple intelligences (Gardner, 1983).

For example, in a 1996 study conducted by MacIntyre and Charos (1996), personality variables such as extraversion and openness are mediated by L2 anxiety and L2 competence to predict the frequency of utterances. However, anxiety and competence are actually components of personality, specifically, sub-factors of emotional stability and conscientiousness. The lack of a relationship between emotional stability and conscientiousness in the framework with L2 anxiety and L2 competence illustrates that the Big Five personality test used in this study, Goldberg's transparent bipolar scale (Goldberg, 1992), like other Big Five instruments, may not be well-suited for use in second language learning situations. If no correlation can be found between Big Five emotional stability and L2 anxiety, then the instrument may not be capturing personality in this environment, highlighting a need for a more situation-specific personality instrument, one that captures personality shifts in a second language learning situation. If this could be accomplished, the TESOL research community might stop viewing personality as a static background variable requiring several mediations and begin looking at personality as a dynamic primary variable that can yield immediate outcomes.

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Using ecological structure to analyse teacher work and practice in two culturally different settings

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ABSTRACT

This paper examines methodological challenges throughout a cross-cultural case study on teacher work and practice and outlines the researcher's reflections on and responses to these challenges. Special education teachers working in Japanese and Australian special education settings shared classroom ecologies in that they worked with small groups of children including one or more with autistic spectrum disorders (ASDs). They also engaged with other educators about their everyday work. However, how they did their work differed within their multilayered cultural contexts: National (e.g., educational emphasis, curriculum approach), institutional (e.g., school emphasis, community of practice), and personal (e.g., classroom structures, personal experiences). Field research in these complex settings and data analysis of these two cases encountered boundary issues. The paper outlines how the researcher worked with teacher participants to solve problems together and how she employed their shared ecologies to create a structural framework to compare and contrast these culturally different cases. The need for slightly different methodological paths for investigating these cases will be discussed.

Keywords: Autistic spectrum disorders, boundaries, case study, education, culture.

INTRODUCTION

Autistic spectrum disorder (ASD) is a prevalent developmental disorder whose social and communicative features are not easily accommodated in classroom instruction. Teaching children with ASD has attracted emerging worldwide interest from researchers and educators, who are struggling with what they can do better for those children. Global education has fostered a notion that recommended practices for children with disability can be expected to travel across nations freely and to be observable in cross-cultural research on teacher work and practice with these children. However, the boundaries between work and practice in different cultural contexts have made these studies less than straightforward. Strong social and cultural boundaries have challenged the few qualitative researchers studying teacher practice in different nations. These challenges have concerned ways to gather meaningful data (linguistic boundaries), interpret the data from participants' perspectives (theoretical and conceptual engagement), and generate research

outcomes applicable across nations and their contextual and cultural boundaries (the mobility of practice).

Education research has been focused previously on particular groups of people or on certain domain of expertise, and most studies of classroom learning have been conducted within recognised intercultural boundaries of teacher practice (Akkerman & Bakker, 2011). Recently, a few cross-cultural researchers have tried to arrive at a qualitative understanding of the differences among nations and their intercultural explanations of their own work and practice. Through the earlier 20th century history of cross-cultural investigations, the social and cultural construction of teacher work was well recognised, and the multilayered influences on teaching and learning were already understood (Bronfenbrenner, 1995, 1999). More recently, Dronkers (2010) confirmed that institutional contexts such as schools and community of teacher practice have more direct impact on individual outcomes from teaching and learning than political and cultural contexts (i.e., education system). As interaction and exchange between nations have been enhanced by recent dramatic changes in information mobility, educational issues once contained in one country and its educational systems have raised shared international interest.

Since cross-cultural research emerged as a subfield in comparative education research, cultural boundary issues in the mobility of cultural and social practice across nations have become a new topic of concern (e.g., Fox, Majhanovich, & Gök, 2011; Gómez & Kuronen, 2011; Lewis, Koyasu, et al., 2009; Luke, 2011; Willis & Rapple, 2011; Yang, 2011). For example, a special issue in the *International Review of Education* in 2011, entitled “Re-bordering and New Possibilities in Education and Society”, pointed to new barriers as well as new possibilities for education and society resulting from new borders of education created through globalisation across Asian and European countries (see also, Fox, Majhanovich, & Gök, 2012). This issue also addressed ways to overcome “hidden social borders” (Fox et al., 2011, p. 253). Of particular interest, these researchers outlined their own mental and physical processes in reflecting on these borders and deciding how to deal with them.

Moreover, Gómez and Kuronen (2011) used two cross-national research projects conducted in pairs of European countries (i.e., Finland and Scotland, Scotland and Spain) to articulate specific methodological challenges and possibilities in conducting qualitative cross-cultural studies. Gómez and Kuronen (2011) identified four areas of concerns “related to cultural differences, semantic similarities hiding differences, differences of conceptualization, and language...[and] the possibilities to understand actors’ conceptual framework in different social and cultural context” (p. 694). They used their research questions and methodological approaches as a guide rather than applying identical quantitative measures of cognition, motivation, and personality across all contexts. They argued that following “slightly different methodological paths” (Gómez & Kuronen, 2011, p. 694) allowed researchers to gain deeper understandings of the local practice.

In a timely fashion, the processes of dealing with bordering issues in Japanese modern education have also been discussed in the edited book entitled “Reimagining Japanese Education: Borders, Transfers, Circulations, and the Comparative.” For example, Willis and Rapple (2011) pointed out that English speaking scholars need to work with scholars who speak the local language in order to “see” the realities of education and society in non-English speaking countries. However, one Japanese commentator pointed that the theoretical and conceptual chapters were still written only by English speaking scholars (Saito, 2011). Despite some increase in empirical evidence in English-language educational literature about teacher practice in non-English countries, English speaking scholars rather than native scholars of the countries have typically produced the interpretation of this evidence. Kariya (2011) argued that the participation of local researchers and educators of non-English speaking background have become more crucial in contemporary education to create

opportunities for dialogue (Kariya, 2011) that may reveal discoveries that are unknown to the host culture because they are unconsciously and implicitly embedded in everyday practice.

In the continuing search for new possibilities for teaching children with ASD, qualitative cross-cultural studies have provided one way to reveal what and how teaching professionals do for these children differently across nations (Daley, 2002). Linguistic boundaries have been reviewed in the field of education for children with ASD. Although English-language research literature has identified many recommended practices for children with ASD, there have been few meaningful data on practices used and studied in “foreign” languages (e.g., Japanese). It has been suggested that this dominance of English had restricted access to valuable local sources of teacher practice written in different languages: What Kariya (2011, p. 282) called culturally rich “self-portraits.” Recent researchers and theorists (Fox et al., 2011; Kariya, 2011; Pearce, 2011) have queried the loss of important social and cultural dimensions of local research and publication. When researchers shift their focus away from individual differences in teacher practice within schools or classrooms, they are able to see new possibilities of practice used in one culture for another culture. An example of in-school study addressed that a process of action research learning within and between schools involved “meaning-making, collaborative inquiry” (see, for example, Piliouras & Evangelou, 2012, p. 330) for negotiating about interview questions relevant to their respective contexts and for conceptualising work and practice in each school’s cultural setting: What Kariya (2011, p. 284) called an intercultural “dialogic space.” The process of making meanings through collaborative inquiry between the researcher and the other-cultural participants is, therefore, a process of border-crossing.

Furthermore, the process of reordering social practices in different countries has emerged as a new topic of research. That is, implicit aspects of teacher practice can only be revealed when an outsider sees and questions “givens” of work accepted with the cultural group. Robertson (2011), for example, argued that the distinctive voices of insiders can be understood only in relation to outsiders. Similarly, the European researchers Gómez and Kuronen (2011) argued that their experiences of cross-cultural research forced them to review their ordinary common sense expectations about what is right or wrong about processes and practices in their own countries and cultures (i.e., Scotland). Different relations between education and society have been observed across nations (e.g., Dronkers, 2010; Gómez & Kuronen, 2011; Lewis, Koyasu, et al., 2009). Moreover, Ojima and von Below (2010) observed that a typical explanation of the relation between variables suitable for Germany and other European countries with similar educational systems cannot be always transferred into a Japanese context.

Robertson (2011) has tried to explain how borders work in educational research. She viewed a border as a space that has power to contain social practice and that control of that practice within that space affects the mobility of the practice between cultural spaces. She suggested that comparative educators need to analyse power relations inside these cultural borders because this power creates boundaries, and the boundaries then formed internal relevant category-features of practice. She also argued that boundaries define different categories or entities (e.g., culture, institution, groups, gender, race, etc.) and their different relations and identities to each other. In other words, when researchers try to understand teacher work and practice by looking at cultural differences in two teaching spaces, “control” sustains distinctive voice (i.e., cultural practices) within its own space; therefore, these practices cannot travel to another space or cannot be understood in that space. It is contextual differences that create control or controlling structure that separates their practices and makes them culturally different. When a researcher compares two sets of social practices (i.e., tries to make a bridge or border), the identity of practice (e.g., more group oriented

or individualised strategies) becomes a new strong category, and its power relation creates these two different categories.

Figure 1 visualises Robertson's idea (2011) about how a social entity (e.g., gender, group, Institute, culture) is interpreted as a strong category having a distinctive voice. She employed three key concepts to describe social practice A and B in special terms (p. 285): "Insulation" as a line or border between two distinctive voices A and B whose thickness represents the relative mobility of social practice, "control" as a circle line representing a structure that creates an entity-category applicable to each social practice, and "power" as a vertical line representing a system of social relations. Power relations distinguish how social practice A can interact with social practice B. Researchers engage with the interactive border (i.e., insulation) to see social relations between two practices and thus expose boundaries (i.e., identity-categories) which reveal distinctive voices A and B. Robertson emphasised this process of "reproducing" boundaries: Strong boundaries between two cultures create strong category-making in social practice and "weakening or removing boundaries...are important ways in which new social orders and new identities are produced whilst others are made invisible" (2011, p. 286). In this study, two voices (i.e., Japanese and Australian teachers) were classified into controlling structures (i.e., research questions, subcategories within the research questions). In order to give distinctive voices to teacher work and practice of each cultural group.

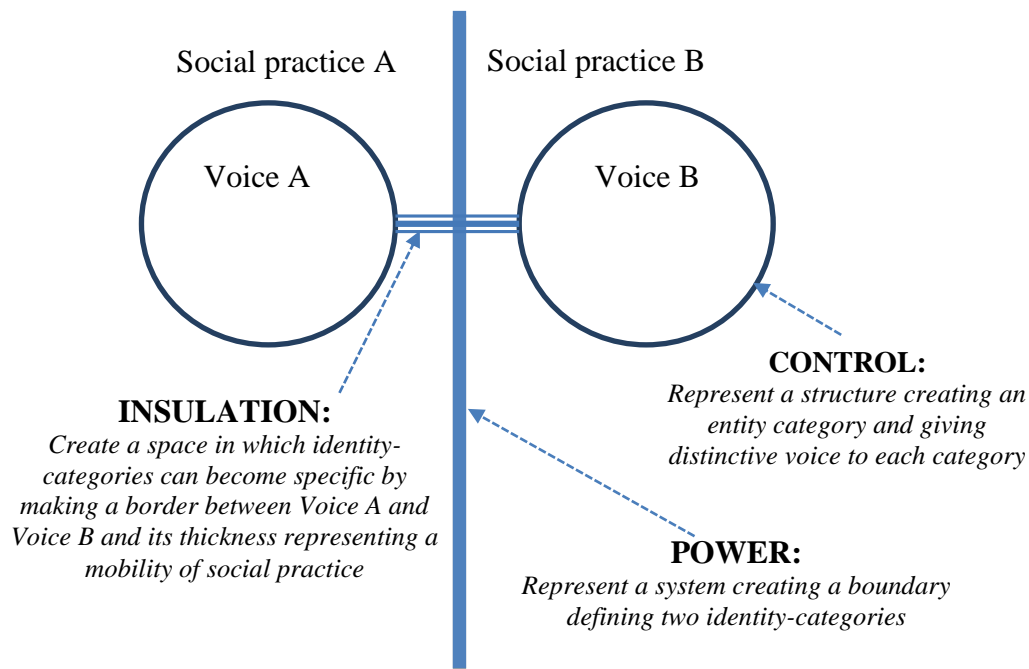


Figure 1. Power, control in the ordering of entities and identities

(Based on the ideas of Robertson, 2011, p. 286).

Moreover, Akkerman and Bakker (2011) argued that researchers' identities could affect how they collect and interpret their data, because cultural boundaries are ambiguous in nature that alter depending on who is looking at the practice. Likewise, the notion of a cultural lens has emerged in recent literature (e.g., Okawa, 2008; Suzuki, 2009). Okawa (2008), for example, described a culture as a lens, which allows individuals to perceive and interpret their world and to create meaning about their lives and world. Moreover, Suzuki (2009) argued that researchers need to suspend their personal cultural lens when working in other cultures because it can bias interpretation of what they

observe and experience with their participants. As an extension from these arguments, this study applied the researcher's cultural lens to look at teacher practice from one perspective to another and back again.

Boundary issues are matters not only for researchers crossing national boundaries but also for all qualitative researchers in general because these boundaries exist within work, school, and everyday life. Boundaries have been defined as "sociocultural differences leading to discontinuities in action and interaction" (Akkerman & Bakker, 2011, p. 152). In other words, when people and/or objects cross boundaries and meet each other, the process of crossing may allow new learning about practice to occur. This process of boundary crossing activates "an inter-cultural lens" through which researchers can see and think in plural directions to and from one perspective to another. Through the cultural lens, "both multivoicedness and the unspecificity at boundaries trigger dialogue and negotiation of meaning" (Akkerman & Bakker, 2011, p. 150).

In the present cross-cultural study, the researcher, a Japanese national studying in Australia, faced methodological challenges in studying the practice of special educators in Japan and Australia in their everyday activities of planning for their children, teaching their children, and evaluating their progress. This case study of two schools was analysing local strategies for including children with ASD in small classes of four-six children with disabilities between 4-12 years old. Boundary issues from national, institutional, and personal differences in the teaching practice of Japanese and Australian teachers at two schools challenged efforts to reveal the respective strengths of teacher practice for children with ASD in small groups. What these boundaries were and how they were dealt with in the two schools contributed to the methodology of this study.

This case study underwent three phases. First, the study design used multiple occasions over a 10-week term of schoolwork for the Japanese case and a 8-week term for the Australian case to amass and assemble detailed "pictures" of teacher practice in each setting. Different but complementary sources of information comprised repeated individual interviews with teachers, ongoing observations in classrooms and teacher meetings, and review of assorted documentation of teacher lessons, student reports, and other administrative paperwork. Second, the enactment of the study design took into account local contexts when developing and defining research activities and instruments. Third, shared ecologies of work (i.e., special educators, small groups of children with disabilities) were used to create and frame a common structure for data analysis and interpretation that was meaningful in both settings. Within this structure, mapping of the massive data sets facilitated qualitative comparisons and contrasts between two culturally different groups.

WHAT BOUNDARIES WERE EXPOSED IN THIS STUDY

Case study was chosen as a method suited to this cross-cultural investigation of teachers' everyday practice in natural classroom environments (Stake, 2008). The complexity of cultural phenomena warranted this application of case study to cross-cultural inquiry. Because this approach is concerned with experiential knowledge about the case and close attention to the influence of its social, political, and other contexts (Stake, 2008), this type of case study encounters cultural boundaries in national, institutional, and personal aspects of everyday classroom practice.

First, national contextual boundary issues added considerable time and effort to identify suitable sites in the two countries. Special education placement of children with ASD involved differences in the respective national or state system, and the layered influences and system differences created difficulties in finding comparable school sites in two countries. The opportunistic site selected first for the Japanese case was a special needs education unit (SNEU) where children with ASD were

placed in separate learning settings within a host primary school. The unit was coded originally for children with intellectual impairments (II) and included children with dual diagnosis of ASD and II. The children and teachers from the SNEU and regular education classrooms interacted with each other in everyday routines (e.g., break time, scheduled interactive activities, and clearing time) and during other special school events.

In contrast, the site chosen for the Australian case was a special school. As in the Japanese site classrooms, all children in these Australian site classrooms had II, and the classes included some children with ASD. However, teachers in these classrooms also explicitly used ASD-specific strategies recommended in the English-language literature. A recent Queensland state educational reform towards inclusion meant a shift away from a previous placement arrangement allowing special educators to teach children with disabilities in small units within primary schools. Special education teachers were tasked instead to provide in-class support for children with ASD enrolled in mainstream classrooms and were no longer engaging in teaching one small group. To maintain the focus on studying specialist practice in teaching a child or children with ASD within a small group, the special school provided a more appropriate setting.

Second, institutional boundaries arose from the specialist teachers' distinctive history of training, experience, curriculum, and approach to professional development. For example, teachers reported differences in leadership and collaboration. The Australian school principal was well-experienced in special school education and had a role in professional leadership in the school, and the Australian teachers recognised the direct influences of their principal on their practice. In contrast, the Japanese school principal was a professor of the school's host university whose role was to connect school practice to the university's teacher training and knowledge of regular and special teacher education. Moreover, outside school contributors to practice were different in each school. The Japanese teachers talked about their collaboration with their special education university professors and with other teachers outside their own school such as senior teachers who previously taught in the SNEU, and their professional development was focused on lesson improvement. In contrast, the Australian teachers talked about working with allied professionals such as speech or occupational therapists, but their professional interaction with these outside specialists was focused on specific strategies for individual children.

Third, how teachers approached their everyday practice varied. For example, the Japanese teachers engaged in a continuing process of lesson planning and modified their lessons every day. In contrast, the Australian teachers encountered unpredicted changes in their classroom schedule almost every day (e.g., child's absence due to sickness) but maintained their lesson planning over an extended time frame. From an ecological perspective, one common challenge for qualitative researchers is to expect and deal with unpredictable day-to-day variations (Doyle, 2006). Consistent occurrence of these differences in the everyday practice of the teachers during the field research created a lot of small but strong boundaries among the individual teachers and contributed to a critical issue insulating border between the two cultural groups. In other words, important findings about cultural differences between the two groups became embedded and invisible within these boundaries, when the researcher looked at the many differences between individual teachers or individual lessons.

Moreover, there were many differences in the individual classrooms, both the Japanese and Australian. For example, one Japanese teacher of the youngest children group used free play as her lesson structure, while another Japanese teacher of older children group used cooking activity as his lesson. Moreover, one of the most significant differences of practice was the presence of other adults in the Australian classrooms (i.e., paraprofessionals or teacher aides, relief teachers) but not in the Japanese classrooms. In the Japanese school, the classroom teachers looked after all children

across a day without official breaks. The variations of the adult-child ratio (e.g., 1:1 to 1:6) in each classroom influenced group dynamics in responsive management of teaching. For example, in the Japanese classrooms where the teachers were alone with children, the teachers preferentially focused their classroom management on the way that children could supervise and help each other. In contrast, in the Australian classrooms where extra help was available to the classroom teachers, the teachers were focused on individual skill development.

Furthermore, these different contextual influences (i.e., national, institutional, individual) were often interconnected rather than separated in teacher practice. For example, some words had different meanings in these two groups, because both cultural and institutional differences influenced how the teachers viewed their work. Kikkawa (2007) previously reported focus group data about how special education teachers talk about how they taught children with ASD in their small classes. She reported that her Australian research supervisors thought the Japanese teachers appeared less confident about their practice, whereas the Australian teachers talked very confidently and competently about their use of the kind of research-based practice recommended in English language literature. The supervisors interpreted those differences as the Japanese teachers struggling with the behaviours of these children more than the Australian teachers. However, different attitudes and manners toward lesson improvement revealed in the current study help to understand why these Japanese teachers sounded less confident. That is, the Japanese teachers engaged in ongoing processes of improving and refining their lessons for a “better way”, and they critiqued their lessons with other teachers regularly. In contrast, the Australian teachers used prior knowledge from recommended practice in literature and from their consultation with other professionals (e.g., speech and occupational therapists) to select the practice most suitable to a child and to develop formal plans extending over multiple lessons. Consequently, although both groups were very confident and competent in their curriculum development and lesson planning in their own contexts, the nature and use of self-reflective talk about practice appeared quite different.

Figure 2 represents teacher practice at the Japanese and Australian schools in this study. The two practice objects representing the two groups of practitioners (i.e., triangle and square shape) cannot be compared, just as fruit categories of apples and oranges cannot be compared. The challenge made transparent in Figure 2, therefore, was how to cross a border, create new categories, and compare teacher work and practice in these culturally and contextually different groups. While being able to communicate in English and Japanese was the starting point for this case study, personal engagement with the practitioners and ecological framing of the data were also needed to progress this study of how special educators went about teaching their children with ASD in their small classes.

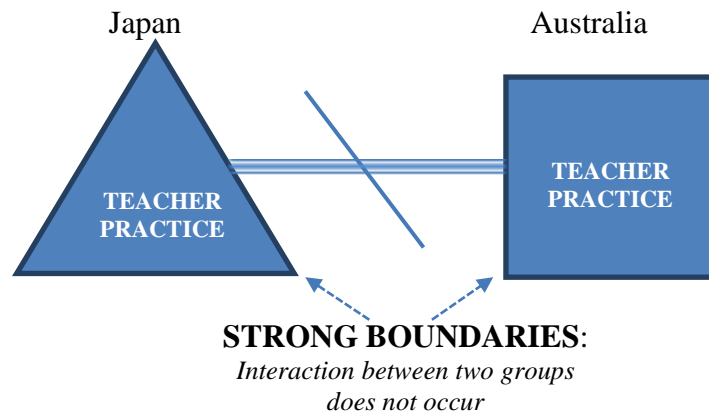


Figure 2. A strong set of boundaries creating strong category-making and separating two cultural groups of teacher work and practice.

HOW TO DEAL WITH THESE BOUNDARIES

During the present study, developing case-responsive methods and clarifying cultural meanings of hidden findings presented cultural boundary challenges in many ways. During the field research, the researcher actively logged the challenges and decision-making about how to respond to these challenges. Researcher reflection about log entries and an ongoing process of monitoring adjustments to study design, tracking the researcher's reflections about findings on the slightly different methodological paths, and dealing with case-specific findings about lesson planning and teaching and teacher collaboration became important evidence in its own right.

The researcher began to recognise that she was viewing each case in plural directions. That is, she was applying an inter-cultural lens to tease out similarities and differences of teacher practice between these cases and to arrive at a better understanding of the local Japanese and Australian approaches to teaching children with ASD in small classes. In contrast to other qualitative inquiry using multiple perspectives from different individuals or data sources in order to enrich the view of the same object (Creswell, 2012), this cross-cultural inquiry applied one researcher's multiple perspectives to view teacher practice from different positions. That is, the researcher carefully examined discontinuities in practice at the borders in designing the study and in responding to teacher feedback about their concerns about design (e.g., interview questions) and about the meaningfulness of data (e.g., "We don't do this at all").

Conceptual disconnections between the researcher and participants triggered the inter-cultural lens to bring a different perspective to understand the problem or concern, present a solution more workable in each respective context, and contribute to new findings in the study. In both settings, the inter-cultural lens was active because interview questions were translated from English to Japanese for the Japanese teachers as well as they were translated from Japanese to English for the Australian teachers. First, this section presents an example of how to use ecological similarities to weaken cultural boundaries between the two schools and to systemise the data analysis process. Second, examples of how to bend methods to be meaningful and suitable for each cultural group revealed the differences between the cases.

First, ecological similarities were employed to weaken boundaries and cross between the two education systems. The specific ecological criteria shared by special education teachers in these two primary education settings included (a) working as a full-time classroom teacher, (b) having formal

tertiary training in special education, (c) working with at least one child with a formal diagnosis of ASD, (d) teaching group lessons to 4-6 children, and (e) having school-university connections in place. These preset criteria applied to both the national elementary school in Japan where the children with ASD were enrolled full-time in the SNEU attached to the school and to a state special school in Australia that resulted from the site selection process.

This imposition of shared ecologies as a controlling structure in the present study made a bridge between two distinctive schools and weakened the present boundaries of these cases. Figure 3 shows the adaptation of Robertson's idea of reproducing a border to create new categories of social practice to make the triangle and square described in Figure 2 comparable within an ecologically defined circle drawn over the two shapes. Use of shared ecologies as a controlling structure in the present study made a bridge between two distinctive schools and weakened the boundaries of these cases. In other words, the researcher found semantic similarities among each teacher group: These similarities, while invisible within the structural boundaries of two culturally distinct groups, provided common parameters of practice (viz., trained staff teaching several children with disabilities including one or more with ASD).

Within Figure 3, an inter-cultural lens facilitated interaction between the two cases and enabled the two cases to "socialise" with each other within the shared ecologies. That is, the researcher applied Japanese perspectives to view the Australian practice in action within elements of their ecologies (e.g., typical teaching day with a group of children, planning a lesson, teaching a child in a peer group) and applied Australian perspectives to interpret the Japanese practice in action within the equivalent elements of ecologies. By using the inter-cultural lens to examine teacher practice within the controlling ecological structure, the researcher was able to see particular elements of practice (i.e., functional aspects) within particular categories (i.e., research questions).

Deep understanding of the phenomena being structured as they interact with particular variables within their particular contexts is the main focus of cross-cultural case study. In this study, the key phenomenon was teaching children with ASD in a group setting. When the researcher kept to this focus, she came to realise that there were similarities between these two case groups: These teachers worked with a group of children including ASD in their classrooms and with others to improve their practice. She considered the similarities between these two groups in relation to classroom group instruction and teacher collaboration before looking at distinctive aspects of their strategies and practice.

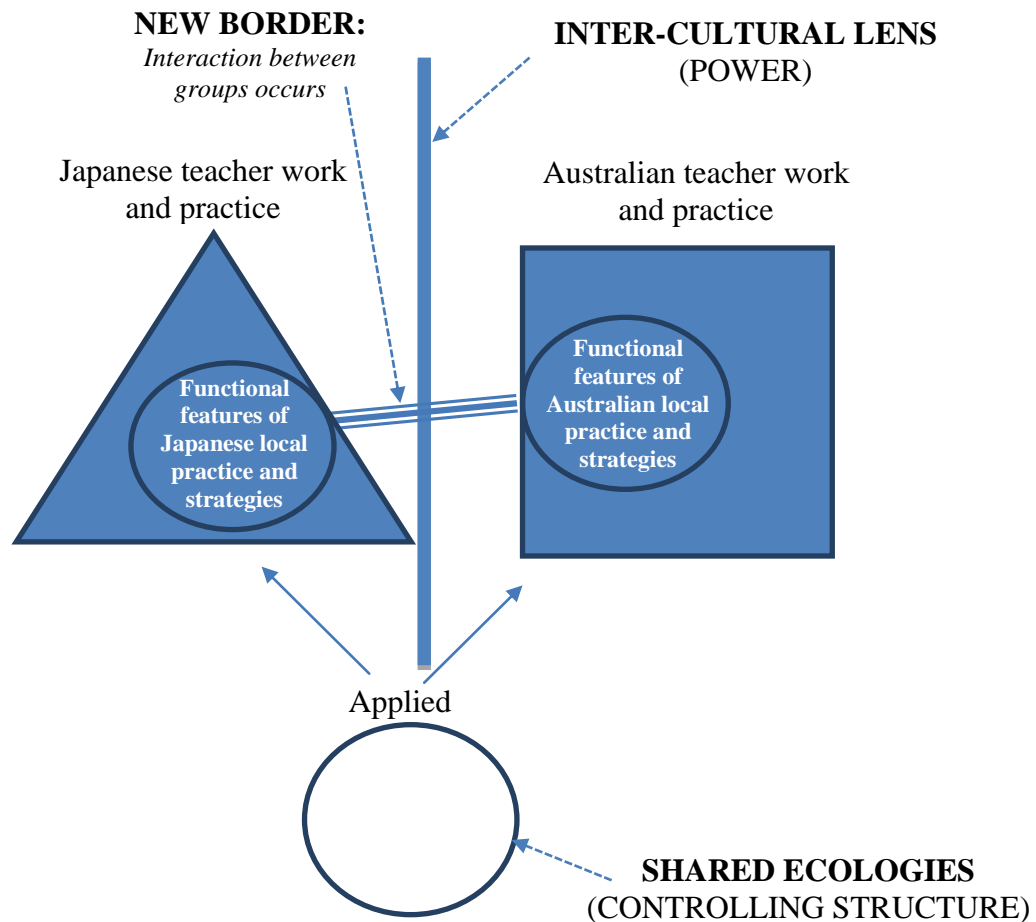


Figure 3. Shared ecologies facilitating comparison of teacher work and practice in two schools.

Moreover, the outline of the ecological structure became more detailed during data analysis, which allowed the researcher to create a systematic procedure to map all different data sources around categories. Case study faces a common criticism that it takes too long, lacks rigor, and produces a massive set of data to analyse (Yin, 2009), but this study requires data collection methods that are responsive to natural conditions of teacher work. The unique data sets about teachers' tasks and activities collected from interviews, observations, and relevant documentations for each group and for three teachers in each group then required some form of systematisation to be compared (Yin, 2012).

To systematise the process of data analysis, subcategories were developed as another layer of controlling structure contributing to the core structure of research questions. These subcategories included key processes (e.g., planning a lesson, implementing a lesson, evaluating a lesson) or ecological features (e.g., interacting with others, instructing a child in a peer group) of teacher work and practice. Thematic analysis (Braun & Clarke, 2006) was used to inspect Interview data, and identification of important themes of each case was used to establish a new layer of controlling structure within which other data were systematically sorted and used to add specific examples to the themes. Through this process, the local strategies and practice of each teacher group were outlined, and cultural similarities and differences became apparent.

For example, the lessons in each classroom or each day, or both, were unique, and instructional strategies for each child in the class were different. However, the researcher's focus on group instruction as a category revealed the presence of ecological similarities in teacher practice in that both teacher groups designed and implemented lessons and reflected on lesson outcomes with specific educational aims. These ecological commonalities became subcategories and created a structure in which teacher practice fit differently in each case. In other words, use of these subcategories helps to clarify the functional expression or features of local practice and strategies.

An example of applying subcategories shows how they helped the researcher to clarify different social foci in each case. This example demonstrated that the focus of social learning in a group lesson created a meaningful border at which subcategories of planning, implementing, and evaluating lessons could be used to systematically examine how the teachers approached children with ASD in a group. The Japanese teachers emphasised social willingness in children with ASD as a primary skill for their future. The teachers believed that the children need to have positive and successful experiences in interacting with peers. They designed lessons in order to create social situations and to facilitate successful and happy interactions among peers, and they praised children who helped peers or enjoyed peer interactions. To achieve this educational goal, the Japanese teachers repeated similar lessons every day over weeks, and the children became more independent from the teachers in the social situations and more interactive in helping each other instead of seeking teachers' support.

In contrast, the Australian teachers focused on improving individual children's social skills as authentic learning goals. They designed lessons that facilitated social tolerance and reduced inappropriate behaviours and instructed the children to use specific social skills (e.g., communicating through picture exchange, following teacher instructions, waiting one's turn). The Australian teachers used a variety of lessons, and the children became able to use the skills in different settings (i.e., generating learning outcomes).

A distinctive theme between these groups was, for example, their respective approaches to lesson development. The Japanese teachers held group meetings to discuss and improve their lessons, and the researcher observed the meetings as part of her investigation of the group instruction process. Observations of meetings were used to clarify what the teachers said about lesson planning and about outcomes they valued during their individual interviews. In contrast, the Australian teachers were more independent in their lesson planning and did not conduct joint teacher meetings about lesson planning. Therefore, the Australian case did not include data on teacher meetings.

On the other hand, the methods used between two cases also differed slightly particularly in linguistic boundaries. In relation to cultural boundary challenges, "language as a carrier of cultural meanings" (Gómez & Kuronen, 2011, p. 692) complicated cross-cultural studies. The two languages (Japanese and English) required development of meaningful interview questions through multiple processes of translation and trans-interpretation. Each set of questions for each teacher group was refined to fit into their respective local context with participating teachers as well as with the local cultural supervisor (i.e., a university professor who was a professional school supervisor of the participating teachers in Japan and a school principal in Australia).

Figure 4 illustrates the ongoing mirror-image process of defining interview questions for both cases. The interview questions were designed first for the Japanese school and then reviewed for the Australian school. The questions for the Japanese teachers were initially developed in English, translated into Japanese, and continuously refined with local participants during field research. Those of the Australian version drifted from the original questions for the Japanese teachers after

the cross-cultural processes of translation and interpretation. Because short reflective interviews for both teacher groups were scheduled regularly (weekly to fortnightly sessions), the researcher was able to engage in developing culturally specific meanings of words used by the teachers.

For example, the researcher realised, early in the data collection process, that the main themes of her study (i.e., lesson, working with others, group instruction) held different meanings in each group. When she asked participants about any collaborative activities with others during the week, the Japanese participants talked about daily conversation, group meetings, and advice with other teacher colleagues about their lesson development. In the Japanese context, “kyouryoku” or collaboration means any activities or chats relating to their lessons including how the children were learning during the lessons. In contrast, the Australian teachers talked about physical practice in which they engaged together with other teachers and staff. In the Australian context, collaboration means classroom or school activities that teachers actually did with others. Therefore, interview prompts were added for the Australian interview: Did you talk to anyone about your work, the children, and your lesson planning?

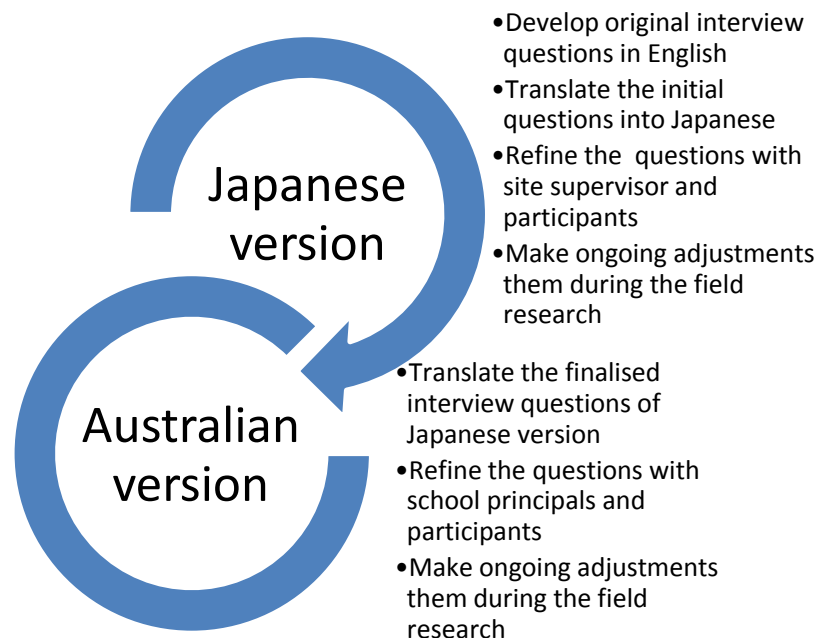


Figure 4. Ongoing process of defining interview questions for this study.

Moreover, the term “lesson” expressed different concepts in these two groups. Using the term encountered strong resistance from one of the Australian teachers who insisted that her class had a “learning experience”, not a lesson. On the other hand, “lesson” had a broad conceptual base in the Japanese context. American researchers reported a similar difference in the concept of a lesson between Japanese and American perspectives: Viewing a lesson as “a live interaction between children and teacher that may occur over an extended time period” in Japanese perspective, while as “a single, discrete block of teaching that can be captured on paper” in American perspective (Lewis, Perry, & Friedkin, 2009, p. 143). To make a bridge between the groups, the researcher added a descriptive explanation to the Australian interview sheet: “A lesson is described as a set/identified period of time with specific learning goals.”

Furthermore, an original Japanese question assigned the word “hyouka” or evaluation the same meaning as summative assessment, which teachers conduct after their teaching to value

subsequent instruction (Crockett, 2007). However, it became apparent during field research that it had different meanings for the Japanese and Australian group. For the Japanese teachers, it was used for immediate reflective feedback and positive reinforcement from the teacher to the child who achieves the learning goal, while, for the Australian teachers, it was similar to summative assessment of children's learning outcomes after their lessons. It became clear that it was not appropriate to use the word, evaluation, in the Japanese context if the interview was focused on summative assessment of learning outcomes.

Thus, some words had different meanings that were culturally identified in each case. To culturally construct a meaningful conceptualisation of practice, the participating teachers were encouraged to articulate their strategies and their professional theories and beliefs behind their professional judgements of their practice. Negotiation of interview questions was needed to clarify the conceptual meanings of words. Working with participants has been identified as one way to minimise one methodological concern using case studies; otherwise, the researcher may take too many subjective decisions before reaching objective results (Gomez & Kuronen, 2011). In this study, decision-making and meaning-clarification were constantly required during processes of data collection in order to gather meaningful data. The methodological challenges on the Japanese-English linguistic boundaries gave useful opportunities for the teachers to articulate their professional standpoints about their practice and for the researcher to understand their work and practice from the participating teachers' point of view.

IMPLICATION AND CONCLUSION

One of the advantages in conducting cross-cultural case studies is to bring a different mind to opening the view of the world and cultural thinking among different cultures (Yang, 2011) and to provide dialogic space to negotiate conceptual and theoretical understandings of local strategies and practice (Kariya, 2011). Cultural boundaries recognised in recent literature were an active issue in this study across Japan and Australia and their participating schools and teachers. The broader the layer became, the more significant the boundaries became. The boundaries came from linguistic, contextual, and conceptual differences and triggered methodological challenges in this cross-cultural case study. However, the reasons for these challenges generated valuable insights about teacher practice in this study.

This case study in two countries forced the researcher to confront boundary challenges in order to gather meaningful data, to interpret the data, and, eventually, to apply the findings to clarify local practice. As examples of dealing with these issues, this paper presented interactive dialogic spaces within ecological similarities for the Japanese and Australian teachers and collaborative interrogations of interview questions between the participating teachers and the researcher. Importantly, case study researchers need to allow themselves some methodological flexibility for creating meaningful methodological paths by bending methods used for each case across cultural boundaries. Careful reflection and collaborative conceptual engagement with participants are essential to provide decisions about which paths to follow. Moreover, this case study showed that active engagement of teacher participants in methodological decision making was valuable in processing cross-cultural case studies.

In conclusion, this study suggested practical and conceptually sound solutions to overcome the cultural boundaries and understand local practice and strategies. First, reflective and responsive processes helped the researcher to bend her methods to fit in the participants' contexts. Ongoing decision-making processes required the researcher to work with participating teachers and listen to

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their voice in order to launch a new and more open-minded methodology of comparative education and to “see” local strategies and practices in the plural ways in which the practitioners in English speaking world and other language speaking world think. Second, focusing on their shared ecologies constructed a meaningful ecological structure within which the researcher was able to synthesise the work structure and then to contrast the practices of these culturally different groups. By using this ecological framework, functional differences of how these teachers work in the similar situations became clear and comparative, and provided different viewpoints in teacher work and practice.

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A Corpus-based Analysis: The Use of Citations

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ABSTRACT

The present study examines the use of citations in research article introductions in the field of educational psychology using Swales's (1990) categorisation of citations as integral and non-integral. The corpus for this study comprises 40 introductions of research articles – 20 Chinese and 20 English – in the field of educational psychology. Ten professors affiliated with higher institutions in native English-speaking countries and six professors with higher institutions in mainland China participated as the specialist informants for the present study. These professors are academic writers who have published their articles in the two selected representative journals of the present study. Whenever applicable, specialist informants' views offer additional insights into the findings in the corpus-based contrastive analysis. The findings of the present study provide some insights into the teaching and learning of academic English writing for Chinese ESL students.

Keywords: Academic writer, citation, research article introduction, reporting verb.

INTRODUCTION

Academic writing involves processes more complex than “technical matters in which ‘appropriate’ skills are acquired and novices become members of an expert community” (Lea & Street, 1998, p. 170). It also demands the acquisition of several linguistic practices which are embedded in complex sets of discourses, identities, and social meanings. That is, in academic literacy practices, writers are required to be able to “switch practices between one setting and another, to deploy a repertoire of linguistic practices appropriate to each setting and to handle the social meanings and identities that each evokes” (Lea & Street, 1998, p. 159). This complexity makes it tricky for learners of English; however advanced they may be, to compose academic work in forms acceptable to English audiences (Dudley Evans, 1995; Johns, 1995; Myers, 1996; Paltridge, 2004; Swales, 1990, 1996). The differences in written conventions and expectations between the learners' native language and English (Paltridge, 2004) make it an even greater challenge for these learners of English. Allaei and Connor (1990) noted that “culturally mixed writing groups may experience problems due to differing expectations and communication patterns” (as cited in Shim, 2005, p. 2).

Previous studies show that there are numerous differences between the student writing of second language and that of native English speakers (Paltridge, 2004; Silva, 1993). These differences are mostly seen in textual patterns, stylistic features, argument structure, narrative structure, use of background reading texts, reader orientation (i.e. material preceding the introduction of a thesis

statement), lexical choices and use of cohesive devices (Silva, 1993; Silva, 1997 as cited in Paltridge, 2004, p. 88). The influence of a writer's first language is evident in English second language writing (see Duszak, 1994; Kaplan, 1966; Matalene, 1985; Ostler, 1987). Duszak (1994) suggests that the use of discourse features which are valued in the non-native speakers' communication causes them to write English academic prose that is unclear to an English audience – as a result their papers might not be accepted for publication.

More and more non-native speakers of that language [i.e. second language] are turning to communicating in written academic English. Then, however, it may happen that they transmit discursal patterns typical of their own tongue but alien to English. As a result, their products may obtain lower interest and/or appreciation, or they may simply fail to get themselves published. (p. 291)

The difficulty of producing coherent academic discourse arose for non-native students of all nationalities and it involves various aspects of academic discourse such as textual patterns, stylistic features, lexical choices, the use of cohesive devices and citations, etc. To keep this study within a feasible scale, it focuses on one non-English language group, Chinese. It focuses on examining the use of citations in the English and Chinese RA introductions. In addition to past research which has been undertaken on the use of citations (e.g. Dubois, 1988; Frost, 1979; Hyland, 1999; Moravcsik & Murugesan, 1975; Swales, 1986; Thompson, 2000; Thompson & Tribble, 2001; Xiao, Yuan & Wu, 2009; Yu, 1996), the present study provides additional insights into the use of citations involving Chinese research article introductions in educational psychology by conducting a corpus-based analysis along with specialist informants' views.

RESEARCH QUESTIONS

The major research questions addressed in the present study are as follows:

- (i) What are the similarities and/or differences in the use of citations between research article introductions written by first-language speakers from the two languages (English and Chinese) chosen for this study?
- (ii) What are the views of the specialist informants with regard to the use of citations in RA introductions?

BACKGROUND

Citation is defined as “the attribution of propositional content to another source” (Hyland, 1999, p. 341). However, the term citation is commonly agreeable to be “previous studies embedded in the texts” (Shim, 2005, p. 37). In academic texts, citations are broadly used to recognise and acknowledge past scholars' contribution to the progress of the related research field or to convince readers that the research to be reported on is important (Shim, 2005).

In Swales's 1990 study based on an investigation of the introductions of 158 research articles of various disciplines, he identified two forms of citations: “integral” and “non-integral” (Swales, 1990, p. 148). The integral is a citation with the name of the cited author appearing in the actual citing sentence, while the non-integral is a citation independent from the actual citing sentences and the source of the citation is included in parenthesis. Alternatively, the non-integral citation uses some other device such as a superscript number to indicate the source of the citation. These two forms of citations are sometimes used with a “reporting” verb, which Swales (1990) defines as the verb

employed to introduce past researchers and their findings (e.g. show, establish, claim, etc.) (p. 150). In the instances where the reporting verb is used, Swales called the integral/non-integral citations reporting. When there is no reporting verb used, he called the citations non-reporting.

METHODOLOGY

This study is a combination of qualitative and quantitative research that includes both a quantitative data tabulated to illustrate the breakdown of citations and, a description of the types of citations found in the corpus as well as specialist informants' views on the use of citations in RA introductions. Research article introductions for the corpus were selected from publication in the five years preceding the year in which the sampling was made (i.e. RAs published from 2003 to 2007). The 20 English research articles, written by first language speakers, were selected from *The Journal of Educational Psychology*. The 20 Chinese research articles written by first-language Chinese speakers were selected from *心理发展与教育* (Psychological Development and Education). The two journals were selected as being representative of prestigious refereed journals in the field of educational psychology published in their respective countries (the USA and mainland China).

Citation analysis

Using Swales's (1990) categorisation of citations as integral and non-integral, this study explores the employment of citations, as important "pragmatic feature(s) of (the) texts" (Shim, 2005, p. 8).

The aspects examined in citation analysis were as follows:

(i) The distribution of citations

The occurrences of integral and non-integral citations were counted and tabulated. If a similar citation (i.e. the same author's name and the same year of publication) appeared more than once in a RA introduction, the citation was only counted once.

(ii) Average density of citations per introduction section

The average occurrence of citations per introduction section was measured by dividing the total number of citations from each category (integral/non-integral) with the total number of RA introductions in each set of data [cf. average occurrences of citations per introduction was employed in Taylor & Chen's (1991) and Ahmad's (1997) research].

In order to provide more comprehensive findings, the text analysis is conducted alongside correspondences via e-mail with the members of the English and Chinese discourse communities who have agreed to participate as the specialist informants for the present study. These informants provided perceptions in the use of citations in RA introductions in their discourse community.

Methods used to elicit information from specialist informants

Bhatia (1993) proposed that the specialist informant be a proficient and skilled member of the disciplinary culture in which the genre being studied is regularly engaged; and that he is able to make clear what he believes expert members of the culture do when they use language to achieve their generic goals. The specialist informant also needs to have a feeling for the specialist language, and be ready to talk openly about it when asked searching questions concerning aspects of the genre being studied.

The present study followed the guideline provided by Bhatia (1993) in the selection of the specialist informants. The specialist informants for the present study are experienced academic writers of the articles randomly selected from the two representative journals used by the present study.

An e-mail was sent to invite the academic writers of the original data (20 native English-speaking writers and 20 Chinese writers) to participate as specialist informants. Of the 20 English academic writers, four agreed to participate in the study, and 3 of the 20 Chinese academic writers agreed to be specialist informants. To gather more participants, e-mails were sent to a random selection of academic writers (50 native English-speaking writers and 50 Chinese writers) whose articles were not included in the original data (but who had published in the two representative journals in the same time frame (2003-2007) as the original data as well as in 2008 and 2009. Six of these 50 English writers and 3 of these 50 Chinese writers agreed to be specialist informants for the present study. The total number of participants is 16: 10 (4+6) English and 6 (3+3) Chinese specialist informants. These 16 specialist informants were coded as P1 to P16 (see Table 1).

It is presumed that informants with English last names are native-speakers of English. However, to confirm whether the informants are native speakers of English or not, an enquiry was made through e-mail. The English informants have confirmed that they are native speakers of English and have obtained their schooling and tertiary education in the language in a native English-speaking country. These informants are affiliated with higher institutions in native English-speaking countries (see Table 1).

Out of the 10 English specialist informants (called P1 – P10 for this study; see Table 1), nine are professors from universities in native English-speaking countries while one is a research associate from a research institute in Washington.

The six Chinese specialist informants (called P11 – P16 for this study; see Table 1) are professors from the universities in mainland China. It will be ideal to be able to obtain a balance sample (i.e. 10 instead of 6 specialist informants). Nevertheless, the above sample size (subjected to the availability of the writers' participation) should be acceptable for the purpose of the present study that aims to provide additional insights into the use of citations in English and Chinese RA introductions. The above technique of eliciting information from specialist informants has also been undertaken in past studies. For example, Shim (2005) obtained three Korean scholars' and five native English-speaking scholars' views on the preferred rhetorical patterns and styles in research article introductions (see also Anthony, 1999; Hyland, 1999; Tarone, et al., 1981).

The 16 specialist informants' academic rank and affiliation are shown in Table 1. The additional personal information volunteered by these specialist informants in terms of country of origin, gender, age, degree, and the total number of publications (which reflect their research productivity) is presented in Table 2. As shown in Table 2, the Chinese informants are younger than their Anglo counterparts and they published very few English-medium articles.

Table 1. *Specialist informants for the present study*

Specialist informants	Academic rank	Affiliation
P1	Full professor	Texas Christian University
P2	Associate professor	Florida State University
P3	Professor	University of London
P4	Lecturer	University of Newcastle
P5	Associate professor	Harvard Graduate School of Education
P6	Assistant professor	Brigham Young University
P7	Associate professor	Vanderbilt University

P8	Post-doctoral scholar	University of California Santa Barbara
P9	Professor	Hofstra University
P10	Senior research associate	Washington Research Institute
P11	Associate professor	Hunan Science and Technology University
P12	Associate professor	Xi An Physical Education University
P13	Professor	Renmin University of China
P14	Associate professor	Jiaying College
P15	Professor	Shaanxi Normal University
P16	Professor	Beijing Normal University

Table 2. Personal details volunteered by specialist informants (participants)

Specialist informant	Country of origin	Gender	Age	Degree	Number of publications	
					English	Chinese
P1	USA	female	early 60s	PhD	40	-
P2	USA	female	early 50s	PhD	17	-
P3	United Kingdom	male	late 50s	PhD	36	-
P4	Australia	female	early 50s	PhD	27	-
P5	South Korea (native English speaker)	male	40	Ed.D	Approx. 10	
P6	USA	male	early 40s	PhD	15	-
P7	USA	female	early 30s	PhD	15	-
P8	USA	male	late 40s	PhD	5	-
P9	USA	male	early 50s	Ed.D	55	-
P10	USA	female	early 60s	PhD	55	-
P11	China	male	early 40s	PhD	0	Over 20
P12	China	female	early 40s	Master	2	7
P13	China	female	mid-40s	PhD	3	15
P14	China	male	mid-40s	Master	1	74-77
P15	China	male	mid-40s	PhD	0	40
P16	China	male	early 40s	PhD	5	5

The question posed to both English and Chinese specialist informants is “What is your view on the employment of citations in the introduction section of a research article?”

The question posed to Chinese specialist informants is “Past research has shown that Chinese writers tend to use fewer citations compared to English writers (native speakers of English). In your views, what could have probably caused this phenomenon?”

The above two questions are open-ended and descriptive (Spradley, 1979). They are designed to extract a large amount of information and at the same time specific enough to elicit the intended information. In some cases, follow-up questions were e-mailed to further clarify the specialist informants’ responses. The responses were examined to offer (i) additional insights (whenever applicable) into the findings in the corpus-based contrastive analysis and (ii) to obtain specialist informants’ thoughts on citation practice (not their own citation behaviors), which has important pedagogical implications in the English for Academic Purposes (EAP) classroom. It should be noted that the present study does not attempt to compare and contrast the views between English and Chinese informants but their views will offer additional findings to supplement the accompanying corpus-based contrastive analysis.

RESULTS AND DISCUSSION

As described in section 2, in integral citations, the name of the cited researcher (the source of the citation) appears in the sentence; whereas in non-integral citations, the name of the researcher is in parenthesis, in a footnote, or marked by a superscript number (Swales, 1990). These two types of citations – integral and non-integral are used with or without a “reporting” verb which Swales (1990, p. 150) defines as the verb employed to introduce past researchers and their findings (e.g. show, establish, claim, etc.).

English corpus

The following exemplifies the integral and non-integral citations found in English RA introductions (reporting verbs have emphasis added):

Integral form of citations (reporting)

[E-2] Perfetti et al. (1999) suggested when expert readers, like historians, read multiple texts, the intertext model and the situation model are in a constant state of interaction and evolution.

[E-8] In one direct test, Midgley et al. (1995) found that elementary school teachers reported greater use of instructional practices associated with a mastery structure (but no difference in performance structure) when compared with middle school teachers.

Integral form of citations (non-reporting)

[E-7] One of the landmark studies of the period is Hayes and Flower’s (1980) cognitive model.

[E-10] Ackerman’s (1996) theory of adult intellectual development, called PPIK (intelligence-as-Process, Personality, Interests, and intelligence-as Knowledge), is an extension of Cattell’s (1957) framework, and ... in domain knowledge.

Non-integral form of citations (reporting)

[E-2] The first wave of research in reading comprehension interventions was not aimed at the coordinated use of strategies before, during, or after reading; rather... (Bos, 1989; Dole, Brown, & Trathen, 1996; ...).

[E-4] Literacy research has traditionally focused on cognitive aspects of reading, such as word recognition and comprehension (Adams, 1990), and ... (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001; ...).

Non-integral form of citations (non-reporting)

[E-9] Approximately half of the children with ADHD develop comorbid oppositional defiant disorder or conduct disorder (Waschbusch, 2002).

[E-9] Research examining ethnicity and ADHD is relatively limited (Reid et al., 2000; Samuel et al., 1977).

Chinese corpus

The following exemplifies the integral and non-integral citations found in Chinese RA introductions (reporting verbs have emphasis added). Note that all the citations in the Chinese corpus use the numerical type. These citations are from both international (English) and local (Chinese) sources.

Integral form of citations (reporting)

[C-2] Berlyne [1] 认为

Berlyne [1] held that ...

[C-12] 如 Waschbusch [11] 等研究了 结果表明,

For example, Waschbusch et al. [11] examined ... The results showed that ...

Integral form of citations (non-reporting)

[C-16] 现代比较公认的压力概念是 Lazarus 和 Folkman [1] 的定义。

The contemporary concept of stress, which is widely accepted, is based on Lazarus and Folkman's [1] definition.

[C-12] 情绪表达 [3,4]是指

Emotional expressivity [3, 4] refers to ...

Non-integral form of citations (reporting)

[C-2] 国内的一些研究者也进行了一些这方面的研究, 比如研究了提问的特点 [13-15] 和 [16] 。

Some domestic researchers have also undertaken research on this aspect, such as examining the features of questioning [13-15] and ... [16].

[C-4] 另外的研究也揭示出: “教师自我效能感是 ” [4]。

Other studies also revealed that “teachers' sense of efficacy is ... ” [4].

Non-integral form of citations (non-reporting)

[C-6] 通过言语来调节内部情感状态是 [5] 。

Regulating an internal emotional state through speech is ... [5].

[C-1] 第三类为环境因素, 综合了 [6] 。

The third category is environmental factors which integrate ... [6].

A comparison between the two sets of data in the use of citations

As observed above, the two types of citations (integral and non-integral) are used with or without a reporting structure in four combinations, namely integral/reporting, integral/non-reporting, non-integral/reporting and non-integral/non-reporting forms of citations in the two sets of research article introductions. In the reporting structure, both English and Chinese introductions employ ‘reporting’ verbs (Swales, 1990, p. 150) to introduce the past research and their findings. The verbs are such as revised, proposed, present, argued, reported, found 提出 (pointed out), 发现 (found) and 认为 (considered).

In general, Chinese RA introductions yield about five times lower the total occurrence of citations than do English RA introductions (average density 8.9 vs. 43.8). This shows a disparity between the occurrences of citations in English and Chinese introductions. This phenomenon is reflected in the following examples. That is, in English introductions, citations are used to realise some communicative options in order to build a basis for what the writers were stating. However, in

realising the similar communicative options, citations are not used in Chinese introductions. That is, Chinese writers tend to develop their arguments with their own voice.

To claim the centrality of the study

[E-11] In response to an alarming frequency of violence on the school campus, the topic of peer harassment and victimization has received a good deal of attention (American Psychological Association [APA], 1999; Espelage & Swearer, 2003b; Furlong & Morrison, 1994).

[E-2] Reading comprehension, the construction of meaning from text, is considered to be the most crucial academic skill learned in school (Mastropieri & Scruggs, 1997).

[E-3] Families' involvement in their children's schools is central to most public efforts aimed at reducing the achievement gap between children living in low-income families and their wealthier peers (e.g., U.S. Department of Health and Human Services, 2005). There is, in fact, increasing evidence that high levels of family involvement in school are associated with high levels of child achievement (for meta-analytic reviews, see Fan & Chen, 2001; Jaynes, 2003, 2005a).

[C-9] 男女之间在人格上是否存在差异，一直是人格心理学家关注和争论的焦点问题。

The question of whether or not there are gender differences in personality has been a controversial issue and a concern for personality psychologists.

[C-11] 在小学数学教育中，一个很重要的教育环节就是应用题数学。

Mathematical problem solving is a very important educational aspect of mathematics education in primary schools.

[C-14] 阅读是人类获取知识的重要途径。

Reading is an important way through which human beings acquire knowledge.

To introduce the present study

[E-5] In this study; we take a first step toward addressing this need. We based our study design on the action-control theory model or perceived control (e.g., Little, 1998, 2002; Skinner et al., 1988) and the self-determination theory model of motivation (Deci & Ryan, 2000) as a joint theoretical foundation.

[C-17] 本研究在自然情境的课堂教学中采用教学干预手段来验证教师期望理论。

This study employed teaching intervention within classroom teaching in a natural setting to verify teachers' expectancy theory.

To provide a lead-in to hypothesis formation

[E-1] Consistent with the other research, combined emotional and academic teacher support is related to student effort for academics (Wentzel, 1997). Thus, we expect that perceived support will facilitate students' willingness to engage cognitively and behaviorally in academic tasks, so that both teacher emotional support and teacher academic support will be related positively to both students' use of self-regulation strategies and their task-related interaction

[C16]量表的编制将建立在两方面的基础之上。第一，概念基础。既，何谓压力？第二，现象学基础。既，中国大学教师的压力主要表现在哪些方面？

The establishment of the scale will be based on two aspects. Firstly, the conceptual basis – what is stress? – and secondly, the phenomenological basis – in what ways are stresses faced by Chinese university lecturers mainly manifested?

The explanation for the above different degree use of citations could be that the both sets of data differs in length. The average length of a Chinese introduction was 17.3 sentences while it was 72.4 sentences for that of an English introduction. As introductions are longer, there is presumably more need for a more elaborate discussion of the literature review. As Thompson & Tribble (2001) noted that “In long texts ..., there is a higher likelihood that references to leading researchers in the field will be elaborated and give greater prominence to the author(s)” (p. 93).

Chinese writers made lower use of citations in a relatively short introduction for another reason that become clear from the following comment made by a Chinese specialist informant. His remarks reflect that Chinese writers feel comfortable in using fewer citations as long as their arguments are concise and clear:

这可能有多种原因，而最主要的原因可能是国内作者往往求精求简，不求多，能把问题说清楚即可。(P14, Chinese specialist informant, e-mail correspondence)

There are many possible reasons for this (the lower use of citations for Chinese scholars compared to their English-speaking counterparts), but the main reason may be that the domestic (Chinese) scholars are often concise and not elaborate, seeking to be clear in their communicating the issue

An English informant however feels that it is necessary to use a higher number of citations to show familiarity and prominence in the field:

Giving multiple citations also shows that you have a broad and deep understanding of the field and current issues. If only a few citations are used, it suggests that you are not an 'expert' in the field and have only a limited understanding of the topic under investigation. (P4, English specialist informant, e-mail correspondence)

An English informant further elaborates that citations used must be recent:

I think the citations are very important and I would reject a manuscript that did not include relevant, recent and seminal citations. In my opinion, an inability to cite the most recent and relevant research suggests that the authors are not familiar with the most recent or seminal research and, thus, have not considered their findings within the larger extant literature. With all the new search engines, it is really inexcusable not to do a thorough review of the literature across disciplines. (P2, native English-speaking specialist informant, e-mail correspondence)

In fact, according to Shim (2005), the use of fewer citations is acceptable in academic discourse such as China and Korea. The fewer use of citations will not be viewed as a writer's lack of familiarity with the field as it may be a matter of preferences. That is, a writer may prefer to simply provide the background of the study to be reported rather than a critical review of past studies.

That Chinese writers employ citations less than their native English-speaking counterparts was also found in some past studies (e.g. Bloch & Chi, 1995; Ran, 2006; Taylor & Chen, 1991, Zhu, 2008). Taylor and Chen (1991) noted a tentative reason that Chinese writers use fewer citations was the lack of comparable access to the literature. The Chinese specialist informants' views corroborate the above views:

部分中国研究者获取和阅读英文文献有一定的困难。(P16, Chinese specialist informant, e-mail correspondence)

In certain parts of China, researchers have difficulties in accessing English literature.

对于本土的社会问题研究和区域性的问题研究，涉猎的英文文献有限。(P16, Chinese specialist informant, e-mail correspondence)

There is limited research by western (English-speaking) researchers into local society and regional issues.

可能是拥有的文献资源不够，也可能是一些初学者对文献的整理概括能力有限。(P11, Chinese specialist informant, e-mail correspondence)

There is a possibility that available resources are limited. Also, some novice writers may be limited in their ability to organize and summaries the literature.

CONCLUSION

For Chinese students, the knowledge in the use of citations as well as its importance in English academic writing (as reflected in the specialist informants' views of the present study) may help students with the appropriate rhetorical use of citations. Such knowledge can also support students in making more conscious choices in the production of academic English prose that is acceptable for English readers and to avoid being accused of plagiarism as well as to avoid being viewed as "lack of familiarity with the field or as a lack of authority in the writing" (Shim, 2005, p. 36).

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APPENDIX

Specialist informants' publications in the representative journals of the present study

P1

Block, C. (2009). Instructional approaches that significantly increase reading comprehension. *Journal of Educational Psychology*, 101(2), 262-281.

P2

Connor, C. M., Morrison, F. J., & Slominski, L. (2006). Preschool instruction and children's emergent literacy growth. *Journal of Educational Psychology*, 98(4), 665-689.

P3

Cowan, R., Donlan, C., Newton, E. J., & Lloyd, D. (2005). Number skills and knowledge in children with specific language impairment. *Journal of Educational Psychology*, 97(4), 732-744.

P4

Dally, K. (2006). The influence of phonological processing and inattentive behavior on reading acquisition. *Journal of Educational Psychology*, 98(2), 420-437.

P5

James, S. K. (2007). The effects of a voluntary summer reading intervention on reading activities and reading achievement. *Journal of Educational Psychology*, 99(3), 505-515.

P6

Nokes, J. D., Dole, J. A., & Hacker, D. J. (2007). Teaching high school students to use heuristics while reading historical texts. *Journal of Educational Psychology*, 99(3), 492-504.

P7

Rittle-Johnson, B., & Star, J. R. (2007). Does comparing solution methods facilitate conceptual and procedural knowledge? An experimental study on learning to solve equations. *Journal of Educational Psychology*, 99(3), 561-574.

P8

Stull, A. T., & Mayer, R. E. (2007). Learning by doing versus learning by viewing: Three experimental comparisons of learner-generated versus author-provided graphic organizers. *Journal of Educational Psychology*, 99(4), 808-820.

P9

Torff, B., & Sessions, D. N. (2005). Principals' perceptions of the causes of teacher ineffectiveness. *Journal of Educational Psychology*, 97(4), 530-537.

P10

Vadasy, P. F., & Sanders, E. A. (2008). Repeated reading intervention: Outcomes and interactions with readers' skills and classroom instruction. *Journal of Educational Psychology*, 100(2), 272-290.

P11

刘志军, 2007, 初中生乐观主义与其学业成绩的关系及中介效应分析。《心理发展与教育》, 第 3 期, 73-78 页。

Liu, Z. (2007). The relationship between high school student's optimism and their academic achievement and its mediating effect. *Psychological Development and Education*, 3, 73-78.

P12

王翠萍, 张大均, 2007, 数学教学中培养学生学习自我效能感的实验研究。《心理发展与教育》, 第 3 期, 62-67 页。

Wang, S., & Zhang, D. (2007). Experimental research on the effect of psychological education to middle school students and academic self-efficacy in the teaching of Mathematics. *Psychological Development and Education*, 3, 62-67.

P13

吴红云, 2006, 教学活动条件下大学生英语写作元认知的特点。《心理发展与教育》, 第 2 期, 81-84 页。

Wu, H. (2006). EFL writing students' metacognition in the context of formal classroom instruction. *Psychological Development and Education*, 2, 81-84.

P14

曾拓, 杨小洋, 申继亮, 2004, 关于中小学数学教师对教学问题认知的调查分析。《心理发展与教育》, 第 4 期, 74-77 页。

Zeng, T., Yang, X., & Shen, J. (2004). Mathematic teachers' identification of problems in teaching in primary and secondary schools. *Psychological Development and Education*, 4, 74-77.

P15

王振宏, 郭德俊, 马欣笛, 2007, 初中生情绪反应、表达及其与攻击行为。《心理发展与教育》, 第 3 期, 93-97 页。

Wang, Z., Guo, D., & Ma, X. (2007). Emotional reactivity, emotional expressivity and aggressive behavior in junior school students. *Psychological Development and Education*, 3, 93-97.

P16

张学民, 申继亮, 林崇德, 2007, 小学教师课堂信息加工能力的研究。《心理发展与教育》, 第 1 期, 76-81 页。

Zhang, X., Shen, J., & Lin, C. (2007). Studies on classroom information processing of primary school teachers. *Psychological Development and Education*, 1, 76-81.

Indian Students' Choice of Study Destination: Reasons for Choosing Singapore

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ABSTRACT

In recent years, there has been a marked increase in the number of Indian international students studying at Australian universities in Singapore while during the same period, there has been a corresponding decrease in the number of this group of students studying in Australia. The study aimed to understand why one current group of Indian students studying in Singapore chose to study in Singapore at an Australian tertiary institution rather than study in Australia or elsewhere in the world. While recent assaults on Indian students in Australia may have influenced Indian students' decisions to study in locations other than Australia, there may have been other influences as well. These include the increasing strength of the Australian dollar as well as a tightening of the student visa applications.

The research design employed a mixed methods approach using focus group interviews and descriptive statistics from two surveys. The study found that for most international Indian students studying in Singapore, safety, proximity to India, lower cost of living and the perception at there were better job prospects in Singapore on the completion of their degrees compared to other locations were the prime reasons they chose to study in Singapore. The study highlights future recommendations for universities in attracting and catering for students from overseas countries.

Keywords: Global education, higher education, Indian Students, international students, Australian universities.

INTRODUCTION

As tertiary education has become more globalized, Australia has become one of the largest providers of international education in the world after the United States (18%) and the United Kingdom (10%), providing 7.0% of all international education in 2009 (Australian Bureau of Statistics [ABS], 2011; Organization for Economic Cooperation and Development [OECD], 2011). Since the 1980s, international education has been a viable trade commodity (Auletta, 2000; Harman, 2004) and in 2010 -11, contributed A\$16.3 billion in export income to the Australian economy (Australian Education International, 2011). However, in 2010-2011, there was a 5.1% decline in student visa applications (ABS, 2011). This decline may be the result of: adjustments to Australia's migration

policy, making it more difficult for international students to gain permanent residency in Australia (Deloitte Access Economics, 2011); changes to student visa regulations requiring international students to be financially able (Deloitte Access Economics, 2011); closures of a number of private educational providers particularly in the Vocational Education Sector (Australian Government Department of Immigration and Citizenship, 2011); the strengthening Australian dollar raising the cost of living in Australia compared with other study destinations; and the growth of overseas competitors (ABS, 2011).

Deloitte Access Economics (2011) suggest that the decline in student visa applications may also be the result of recent assaults on Indian international students in Melbourne in 2008, which received wide media coverage both in Australia (Das, 2009; Harrison, Austin and Millar, 2009), and in India (Argoon, 2010; Hatcher, 2010). While these factors may have contributed to a decline of the number of students from India studying in Australia, the decline could be related to other factors as well (OECD, 2011). By examining the discourses upon which Indian international student drew, the study sought to understand:

1. Why one group of Indian students chose to study at an Australian campus in Singapore; and
2. Whether Indian Education Agents in India influenced students' choice of study destination.

BACKGROUND

The globalization of tertiary education

The Organization for Economic Development and Cooperation (OECD) suggest that as economies and societies are becoming more globalized, so is tertiary education (2011). Students are increasingly choosing overseas study destinations to broaden their understanding of different business methods and to improve their prospects of securing future employment, (OECD, 2011). The number of students enrolling in a tertiary course outside their country of citizenship has risen from 0.8 million students worldwide in 1975 to 3.7 million worldwide in 2009 (UNESCO Institute for Statistics, 2011). In viewing worldwide data, the OECD found that "the proportion of foreign students among all tertiary students grew 7% from 2000 to 2009" (2011, p. 320).

In 2009, the United States received the highest share of international students "with 18% of all foreign students worldwide, followed by the United Kingdom (10%), Australia (7%), Germany (7%) and France (7%)" (OECD, 2011, p. 321). While these countries have accounted for half of all international tertiary students, new players in the international education market may be emerging. From 2000 to 2009, the number of international students who chose the United States as their study destination fell from 23% to 18% while the United Kingdom also fell one percentage point (OECD, 2011). The share of international students who chose Australia, however, "grew by almost two percentage points" (OECD, 2011, p. 321). The most recent data shows that in Australia, 21.5% of all tertiary students are international students (OECD, 2011).

Factors influencing international students' choice of study destinations

In considering the countries of choice for international students (United States, United Kingdom and Australia), English-speaking countries appear to be the countries of choice. This reflects "the progressive adoption of English as a global language" (OECD, 2011, p. 322). The OECD suggest that "it may also be because students intending to study abroad are likely to have learned English in their home country and/or wish to improve their English language skills through immersion in a native English-speaking context" (2011, p. 322).

Quality of education is an important factor for international students in their choice of study destination and students' choices may be influenced by the reputation and information about the institution (Mazzarol & Soutar, 2002). According to the OECD, students' choices are more often "based on the quality of education offered, as perceived from a wide array of information on and rankings of higher education programmes now available, both in print and online" (OECD, 2011, p. 322). The emergence of university rankings and the attention given to it by many universities reflect the perception that the quality of the institutions is important for students.

Another factor for consideration for international students is immigration policies. According to the OECD, "several OECD countries have eased their immigration policies to encourage the temporary or permanent immigration of international students" (OECD, 2011, p. 325). Australia has made it easier for international students who have studied in Australia to become permanent residents by giving them "additional points in an immigration point system" (OECD, 2011, p. 328).

Mazzarol and Soutar (2002) argue that international students' choice of study destination is influenced by the relative costs. Education and living costs are likely to play a role in international students' choice of study destination. In the context of competitive markets for international tertiary education of similar quality, lower cost study destinations are more likely to attract international students. The deterioration of international enrolments in the United States and the United Kingdom may account for this choice.

The OECD has suggested that a range of other factors may influence international students' choice of study destination. These factors include "the flexibility of programmes in counting time spent abroad towards degree requirements; recognition of foreign degrees; the limitations of tertiary education in the home country; restrictive university admission policies at home; geographical, trade or historical links between countries; future job opportunities; (and) cultural aspirations" (OECD, 2011, p. 325).

Australia has made international education an explicit part of its socio-economic development strategy (OECD, 2011). After coal and iron ore, international education has become Australia's third largest industry (Australian Education International, 2011).

METHOD

The qualitative study (Denzin & Lincoln, 2005) employed a constructivist research paradigm to understand why Indian international students chose to study at an Australian campus in Singapore. A focus group interview and two surveys were used. Wells, Hirshberg, Lipton and Oakes argue that a constructivist research paradigm supports a more "tentative, inductive, and interpretive form of data collection and analysis" (2000, p. 332). Ethics Approval for the study was formally sought and received through James Cook University Australia.

A focus group recruitment of participants included seven Indian international students studying at an Australian campus in Singapore, JCU Singapore. There was one student female and six were male students; one student was enrolled in a bachelors degree and six were enrolled in masters degrees. The question, "Why did you choose to study at an Australian university in Singapore" related to the research questions, set the course of the interview. In this way, no 'priori categories' limited their constructions of the topic. The focus group interview was 40 minutes in length, was recorded and transcribed by a Research Assistant for later analysis. The transcript was returned to the researchers and made available to participants to verify its authentication. Analysis of the transcript data focused on themes and categories constructed from the discourses on which the participants drew.

The findings of the focus group assisted in the construction of two surveys, one of Indian students studying at Australian universities in Singapore and another of Indian Education Agents working from India. Indian Education Agents recruit students on behalf of tertiary education and training institutions outside of India, such as Australia and Singapore (Australian Education International, n.d.) and disseminate information to prospective students about possible study destinations and institutions. The first survey examined the views and profiles of Indian students studying in Singapore. A second survey, which examined the views and profiles of Indian Education Agents in India, was employed primarily to crosscheck the influence of Indian Education Agents on Indian students' choice of study destination. The surveys were offered online using Survey Monkey to every fifth Indian international students listed as studying at Australian universities in Singapore and to 18 Indian Education Agents working in India.

This process of systematic selection was designed to replicate the international Indian student population studying at Australian institutions in Singapore. The survey included both closed-end and open-ended questions. Descriptive statistics and graphical illustrations were calculated from the closed-end questions and used in the interpretation of results. The analysis of the open-ended questions focused on identifying themes and categories constructed from the discourses on which the participants drew. Over a four-month period, 236 online student responses were received, representing a 39% response rate. The findings of the focus group interview and surveys are presented in next section.

FINDINGS AND DISCUSSION

Focus Group Interview: Discourses in International Education

The focus group interview was analysed using the concept of discourse to understand why Indian international students chose to study at an Australian university in Singapore. Discourse defines ways of thinking within societies and cultures, demarking boundaries of possible truths in language and in social practices (Strega, 2005). Within international tertiary education there are a range of competing and contradictory discourses influenced by the wider society. The focus group interview revealed that students drew upon a range of discourses available particularly through the media and internet, including discourses of international exposure, safety/racism/familiar culture, financial hubs and job prospects, and study costs. Each will be discussed in turn.

International/global exposure

The OECD (2011) argues that as economies, societies and education becomes more globalized, students are more likely to increase their competitiveness in the job market if they gain international experience and exposure during their studies. The ConfluenceEdu website reinforces this discourse of global/international exposure to prospective Indian international students affirming that study in Singapore will ensure that they gain "international exposure and (a) global outlook" (2012, p. 1). When asked why they chose to study outside of India, four of the seven students interviewed revealed that they had clearly taken up this discourse:

To get more of a global 'exposure' (Shawn, 10, Focus Group Interviews, June 2, 2011).

Probably to get more international 'exposure' (Frank, 9, Focus Group Interviews, June 2, 2011).

Get more exposure (Rose, 14, Focus Group Interviews, June 2, 2011).

The added advantage was the 'exposure', which we are getting (Max, 51, Focus Group Interviews, June 2, 2011).

As all seven students in the focus group interview were studying business degrees, it may have been even more imperative that they broaden their understanding of overseas business methods to strengthen their future job prospects and careers. The survey of Indian students confirmed that many Indian international students (69.5%) have taken up this discourse. The OECD argue that it is one of the main reasons students travel abroad (2011).

Safety/ racism

Mazzarol & Soutar argue that safety is a prime consideration in choosing a study destination for most international students (2002). Some students in the Focus Group clearly took up this discourse often drawn from media advice (Kulkarni, 2008):

The central government of India made an advice to the students of India that ... an advice not to travel Australia and they didn't put any bar. You can travel but there was an advice not to travel because of (the) racism factor and everyday there is a flash news going on about things happening in Australia. So, it will tend people not to choose Australia (Robert, 47, Focus Group Interviews, June 2, 2011).

I was willing to go to Australia but because of the problem ... I selected Singapore to do my Australian degree in Singapore. It's because of racism over there in Australia (Rose, 35, 15, Focus Group Interviews, June 2, 2011).

I was actually moving to another university in Australia, but it was a bad time you know the situations were not too favorable for Indians out there and coming from an extremely orthodox family; my parents were not ready to take the step and I had to stop all the procedures of getting a loan and everything, moving to Australia and so basically it was more of the racist issue which were happening out there that you know my parents did not allow me to move to Australia (Shawn, 50, Focus Group Interviews, June 2, 2011).

Sidhu, Ho, & Yeoh's (2011) study of international students in Singapore found that 58.9% of students surveyed mentioned that Singapore's reputation as a safe environment was one reason they chose Singapore. While it is often understood by international students that 'safety' means freedom from harm, violence and racism in an overseas study environment, one student in the focus group interview constructed 'safety' as including freedom from a drug-influenced environment:

I actually had one of my relatives who went to Australia to study and he definitely did not have a good experience in terms of like the drug problems over there. Like the teenagers, and like students and colleges ... they are actually really involved in things like those (drugs). So, Singapore on the other hand is extremely strict, you know, in terms of those (drugs). It was definitely like something that my parents wanted me to go to like a safer place (Slash, 48, Focus Group Interviews, June 2, 2011).

The survey of Indian international students studying at Australian universities in Singapore showed that 71.3% considered safety in choosing a study destination and 69.2% chose Singapore over Australia because of safety and security. Sidhu, Ho, & Yeoh's study (2011) found that 58.9% of all international students studying in Singapore stated that Singapore's reputation as a safe environment was one reason they chose Singapore. The higher percentage of Indian international students in the survey (71.3%) compared to a lower percentage of international students generally (58.9%) in Sidhu, Ho, & Yeoh's (2011) study, may indicate a greater concern for safety by Indian international students than international students generally. This concern may have been

precipitated by the 2008 assaults on Indian international students in Australia. Deloitte Access Economics' (2011) have suggested that the 2008 violent attacks on Indian students may have damaged Australia's reputation as a safe study destination. Both the Focus Group interviews and the Indian Student Survey in the current study appear to confirm Deloitte Access Economics' suggestion (2011).

Proximity to home

The OECD (2011) note that international students more often choose study destinations in close geographical proximity to their own country. Websites such as ConfluenceEdu also highlight this benefit to potential Indian international students stating that the "proximity of Singapore to India reduces travel costs" (2012, p. 1). Some students took up this discourse of proximity or closeness to their home country:

Proximity to home was one of the biggest factors (Max, 79, Focus Group Interviews, June 2, 2011).

Basically it was just a place which was quite nearby to my home and ... it's a little bit more closer than to go to Australia (Frank, 49, Focus Group Interviews, June 2, 2011).

It's closer to India, so I can go back at holidays. (Max, 80, Focus Group Interviews, June 2, 2011).

More than half (57.3%) of the students in the survey said that Singapore's proximity to India was one of the reasons they chose Singapore over Australia. This is similar to Sidhu, Ho, & Yeoh's finding that international students prefer study destinations that are in close proximity to their home country (2011).

Familiar culture

The OECD suggest that "trade or historical links between countries" may influence international students' choice of study destinations (2011, p. 325). Since the founding of modern Singapore by the British in 1819, the mass migration of Indians to Singapore to seek work has resulted in Singapore having one of the largest overseas Indian populations (Wikipedia, n.d.). ConfluenceEdu promotes Singapore as being "similar to that in India" (2012). Some students agreed:

The Asian culture is something more I think, I can relate to since I am an Indian, so I thought that Singapore ... the culture is very similar to what we have in India (Bruce, 16, 18, Focus Group Interviews, June 2, 2011).

I am sure I would have had to face more problems adapting in Australia than in Singapore, because you still have quite a major Indian community in Singapore, so you still have the familiarity (Max, 80, Focus Group Interviews, June 2, 2011).

In the survey of Indian international students, 24.5% of students survey said that familiarity with their own culture in Singapore was one of the reasons they chose to study in Singapore rather than Australia.

Costs

International students' choice of study destination is more often influenced by relative costs of education (Mazzarol & Soutar, 2002). In the context of competitive markets for international tertiary education of similar quality, lower educational costs including the cost of living, are more likely to attract international student as some students in the focus group indicated:

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UK cost of living is quite high when compared to Australia. So, like I selected Australia University, so, which is available here so ... I came here (Singapore) (Rose, 37, Focus Group Interviews, June 2, 2011).

So Singapore, like I said earlier, is cheaper as compared to Australia and other places that I researched. The course was offering fast track, so I can finish sooner (Slash, 80, Focus Group Interviews, June 2, 2011).

Mazzrol and Soutar (2002) suggest that the fast-tracking of courses is an attractive option for students as it reduces the length of time spent overseas and therefore the cost of living in another country and overall cost of education as one student indicated. In the survey of Indian international students, 54.9% of the students said that they chose to study at an Australian university in Singapore because it fast-tracked courses. In the survey, 84.6% of Indian international students said that they chose to study in Singapore rather Australia because of the cost of living in Australia. As study and living costs are important factors for international students, Australia may see a further reduction in international student numbers if the Australian dollar continues to strengthen.

Job opportunities/educational/ financial hub in Singapore

Singapore has positioned itself as an educational hub for higher education (Chan & Ng, 2008; Sidhu, Ho, & Yeoh, 2011). ConfluencEdu states on its website that Singapore's "policy of government-funded institutions makes it mandatory for foreign students to stay and work in Singapore for three years after graduation. This means immediate job opportunity after the completion of degree course, and ensuring their stay in Singapore" (2012, p. 1). The attraction of securing work either in Singapore on completion of their degree would be a magnet for most students, as students indicated:

I didn't want to go into any of the British Universities because my friends after finishing their masters were not getting a lot of employment opportunities (Shawn, 32, Focus Group Interviews, June 2, 2011).

I was more interested into the finance sector and what I heard was Singapore was actually the financial hub in the world and so that was one reason why I chose Singapore over Australia (Frank, 25, Focus Group Interviews, June 2, 2011).

In the survey of Indian international students, 53.8% of students said that they chose to study in Singapore rather Australia because they believed that they had better job prospects in Singapore after completing their degree.

Survey: Indian international students' choice of study destination

Students in the survey were asked to rate on a seven-point scale from 'not at all important' to 'extremely important', the level of importance they gave to different considerations in choosing a tertiary institution. Students rated only five considerations as extremely important. These included: 'Employment opportunities' (51.7%), 'Quality of student life on campus' (45.8%), Safety and security (44.1%), 'Cost of education' (33.3%) and 'Government support to start a business' (22.9%). Employment opportunities, safety and security, and cost of education were also the main reasons many Indian international students in the focus group chose to study in Singapore. The quality of life on campus was extremely important to 45.8% of students surveyed and was not mentioned by any of the students in the focus group interview. It may be due that most of the students surveyed were young (98.6% were aged 30 years or less) and wanted to experience university campus life in Singapore in the same way as students in Australia and countries do. Another 22.9% of students

surveyed said that it was extremely important that they were offered support by the government of the country to start a business upon graduation. This unique finding has not been highlighted in other research.

Survey: Indian Education Agents

Students both in the Focus group and the Student Survey were asked what type of information Indian Education Agents offered them. Several students in the Focus Group and 73.3% of students in the Student survey said they consulted an Indian Education Agent. The information the agents gave them included information about visa requirements, the program duration, and the processing of their application to study at a university and accommodation. Although 26.2% of students surveyed said that the Indian Education Agents did influence their choice of study destination, most of the information given by the agents was limited to why one university might be more suitable for the student than another, rather than which country might be a better choice. Because Indian Education Agents are bound by a Code of Ethics of Australian Education International to only guide students' choice of study course and assist with visa applications and enrolments (n.d.), agents appeared to abide by these guidelines. The agents noted that most students had already determined what they wanted to study and where they wanted to study before they as agents were consulted, mainly because much of the information about universities and the course they offer are available online.

RECOMMENDATIONS

As economies, societies and tertiary education becomes more globalized, international student enrolments worldwide are likely to increase. International education contributes significantly to the Australian economy and society, and as such, further research in this area is needed to increase international student enrolments in Australia, particularly among Indian international students. Research might focus on the experience of international students studying in Australian campuses and how that could be improved. It was clear for 45.8% of the students surveyed that the quality of life on campus was extremely important. Further research into what aspects of student life on campus international students consider important may be beneficial. Australian government have undertaken initiatives to improve the experience of international students through the Council of Australian Government's (COAG) International Students Strategy for Australia (2010–2014) (ABS, 2011) and changes to the Education Services for Overseas Students (ESOS) Act 2000 (Johnson & Kumar, 2010). The experiences of international students might be continually improved by further research, leading to policy changes and improvements to strengthen one of Australia's largest export industries, international education.

A further recommendation to remedy the fall in the international students from India might include the setting up of offshore Australian tertiary institutions in India or in Singapore. Ross (2008) argues that the establishment of branch campuses in Asian nations has been effective in franchising brand name universities from traditional study destinations such as Australia. There are currently many successful offshore Australian university campuses in Singapore, including James Cook University.

CONCLUSION

The study sought to understand why Indian international students chose to study in Singapore at an Australian tertiary institution. Using the concept of discourse to analyse a focus group interview, the study found that students drew on a range of discourses including international and global

exposure, cultural experiences, safety and racism, familiar culture, financial hubs and job prospects, and study costs in choosing a study destination.

The survey of Indian international students revealed that students chose to study outside of India because of the quality of education offered in overseas campuses, to gain international experience and to strengthen their future employment opportunities. The study may be limited by its large student sample mainly from one institution. However, the imbalance of different Australian institutions represented is unlikely to affect overall findings as the key questions focused on why students chose an Australian institution and why they chose Singapore, not which Australian institution they chose. Students chose Singapore over Australia mainly because of safety concerns, the proximity of Singapore to India and the lower cost of living in Singapore compared to Australia. Australian universities in Singapore were chosen because their courses were fast-tracked, reducing the overall cost of study. For these reasons, Singapore appears to be emerging as a viable study destination for Indian international students as Kularni (2008) argues, and as the study suggests.

A number of students in the Focus Group interview and the Student Survey indicated that they chose not to study in Australia because they did not consider it a safe study destination. Indian High Commissioner, Sajatha Singh believes that while the Australian government has taken steps to restore Australia's reputation in India, it may take more time and work to change Indian perceptions of how Australia welcomes its international students (Middleton, 2012). Further research to assist Australian Government initiatives to improve the experience of international students in Australian campuses would be beneficial to support Australia's third largest industry, international education.

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Improving Language Teaching & Learning through Neurolinguistic Programming

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ABSTRACT

Research has shown that proficient language learners who are also called 'Self-Directed Learners' and 'Good Language Learners' constantly have successful language learning experiences. They are known to be motivated, independent, flexible and creative language learners compared to the less proficient learners. This leads us to the question, "Why do proficient English as Second Language (ESL) learners have more successful language learning experiences as compared to the less proficient ESL learners? Are the less proficient learners deemed to have bad language learning experience all the time?" This paper suggests various Neurolinguistic Programming (NLP) models that can be used by the less proficient learners who can also reach autonomy in acquiring their second language. Therefore, this paper aims to connect language teaching with learners' cognitive behaviour in order to improve, particularly, the less proficient language learners' learning experience through NLP. The outcome of the present study would be useful to assist language instructors in helping the less proficient ESL learners to undergo a more effective and successful second language learning experience.

Keywords: Less proficient learners, language teaching, neurolinguistic programming, cognitive behaviour.

NLP IN GENERAL

NLP is an important concept in humanistic psychology which emphasises the art of communication and the study of the structure of subjective experience (Tosey, Mathison & Michelli, 2005). This theory was first introduced by John Grinder and Richard Bandler in mid-70's. Since then, the success of this theory can be noticed in various fields such as counselling, corporate training, sports training, and language teaching. According to Helm (1989), NLP is a positive strategy to improve one's learning experience in which the brain uses the entire sensory elements (smells, feelings, sounds, tastes and images) to experience something. Therefore, when all these elements are connected with learning, which is supported in NLP, it becomes the most wonderful experience.

The term NLP can be divided into three different aspects – neuro, linguistic and programming. According to Revell and Norman (1997), neuro in NLP signifies the part where neurological process takes place. When the brain is connected to different senses, eventually different ideas are revealed to our mind. Hence, this is called "subjective experience" which is an important aspect of NLP.

Besides that, linguistics in NLP denotes the way language is used which shapes the way life is experienced. Language can be used in thought and speech. It is believed that the way language is used to speak and think correlates with behaviours. When there is a change in the way language is used, there are also changes in behaviours. The last part of NLP is programming which is to act, think, speak and believe in a new and positive way in order to achieve the desired outcome.

LESS PROFICIENT LANGUAGE LEARNERS REQUIRE NLP

According to Oxford and Nyikos (1989), proficient language learners generally use strategies that are appropriate to their own stage of learning, personality, age, and purpose for learning a language. As Green and Oxford (1995) mentioned, in studies investigating the relationship between proficiency and language learning strategy use, students who were better in their language performance generally reported higher levels of overall strategy use and frequently used a greater number of strategy categories. Therefore, it is known that proficient language learners seldom face difficulty in language acquisition because they can conjure a set of pattern or strategy appropriate to their needs. In past studies conducted, proficient ESL learners are also labelled as good or fast learners and their experience of second language learning is always a successful one. Much research has been done in the past focusing on proficient/good/fast ESL learners and their learning strategies. Researchers who have conducted studies on good and proficient ESL learners are Thompson (2005), Sewell (2003), Rubin and Thompson (1982) and Naiman (1978).

However, only a handful of studies focused on less proficient ESL learners such as Vann and Abraham (1990). This is the group of learners that should be given more attention in order to make them aware of the various ways of learning languages effectively. NLP is one of the effective ways in assisting the less proficient learners to experience a more successful language learning environment. Firstly, through NLP, the less proficient learners will become more aware of their state or level of proficiency. In view of this, Schmidt (1990) claims that conscious learning is a necessary condition for every aspect of language learning. Therefore, when the language learners become aware or conscious of their level, they will take more responsibility in learning. Secondly, the role of instructor is very important in NLP and this is crucial for less proficient learners because they need the guidance of the instructor or teacher in order to carry out certain activity correctly. The teacher is a role model in NLP learning. This on the other hand, is not necessary for the proficient learners because they are independent learners. In view of this, Thompson (2005) claims “rather than seeing the teacher as ‘all-knowing’ and someone never to be questioned, proficient learners see the teacher as a facilitator or an equal partner”. Therefore, it can be said that NLP learning experience will be more helpful for the less proficient learners.

POPULAR NLP MODELS IN TEACHING AND LEARNING

There are many different models in NLP in relation to teaching and learning. This paper reveals some preliminary suggestions on the effectiveness of NLP in language teaching and learning for the less proficient language learners. Further research can be carried out from this point.

Preferred Thinking Pattern

NLP suggests that learners tend to develop a favourite thinking style that could be mainly visual (seeing), auditory (hearing), or kinesthetic (feelings). Although learners may use all the three methods in learning, they will be predominantly inclined towards one ideal method of learning. This knowledge becomes very useful for both learners and teachers in academia; learners may be able to

take their own responsibility in learning and teachers may be able to conduct classes easily, especially in dealing with less proficient learners. These learners require the guidance and direction of the instructor.

Preferred thinking patterns can be identified by various questionnaires available or through the observation of the eye movement of the learner. Questionnaire created by Revell and Norman in their book "In your Hands: NLP in ELT" is called VAK (visual, auditory, kinesthetic) learning preference questionnaire. This questionnaire has nine categories with three statements for each category. Respondent has to grade himself/herself in each category according to which statement seem "most" and "least true". Besides this, questionnaire created by Allen (2003) is also comprehensive with a set of 10 statements; each with four phrases ranging from "least descriptive of you" to "best description of you." The eye movement observation on the other hand, discloses the direction of the eye movement and the reasons behind the actions. Table 1 is compiled from Helm (1989) which describes the eye movement and the representation of the thinking patterns of a right-handed person. Conversely, a left-handed person exhibits eye movement to the opposite direction.

Table 1. *Thinking pattern and eye movement*

Thinking Patterns	Eye Movement Towards Right		Eye Movement Towards Left	
Visual	Look up to the right	To create new ideas	Look up to the left	To remember past experience
Auditory	Look towards the right ear	To create new ideas	Look towards the left ear	To recall incidents
Kinesthetic	Look down to the right	Thinking in emotion	Look down to the left	To create new ideas/ to have internal dialogue

Learners of the respective thinking patterns may also use different choices of words in describing something. Helm (1989) points out that visual learners may say, "I like how your paper looks"; if auditory, "Your paper has a nice sound to it"; and if kinesthetic, "I feel good about your paper".

Once the teacher or the instructor has correctly identified the thinking pattern of students, s/he may start creating activities to suit the students' thinking pattern. This is because, different learners given the same presentation may respond very differently, and their ways of responding may be linked to a fundamental characteristic. For this reason, one cannot expect a learner to adapt to the instructor. Rather, the instructor must design approaches that will take advantage of the learner's unique talents (Moody, 1988). As mentioned earlier, this is vital for the less proficient learners because they need to understand and take responsibility of their own learning. As suggested by Helm (1989), teachers can even use the board in classroom in order to suit the thinking pattern of learners. For example, the instructor can write information up on the board to help the visual learners, write something towards left of the board for auditory learners and towards down to the right for kinesthetic learners. Even when hand-outs are passed around, teachers can ask the learners to place the materials at the position as described in Table 1 to enhance recalling.

The Modelling Process

For The concept of modeling is an important element within NLP (Craft, 2001). NLP experts believe that through modeling, certain behaviors can be emulated, thoughts can be influenced and ideas can be imparted to others in order to achieve the desired outcome. O'Connor and McDermott (1996) claim that "Modeling a skill means finding out about it, and the beliefs and values that enable

them to do it. You can also model emotions, experiences, beliefs and values... Modeling successful performance leads to excellence. If one person can do something, it is possible to model and teach others how to do it.”

This will be particularly useful for the less proficient learners as they will gain more confidence when they know that the method they are using to learn language has been tried, tested and successful. Through modeling, the perception of the less proficient learners can be changed effectively. According to Love (2001), learners who do not perform well on exams often carry feelings of inadequacy into subsequent testing experience or other aspects of their academic performance. Eventually, this feeling will perpetuate and persist in every phase of their lives. Therefore, through modeling process, the less proficient learners have an opportunity to reprogram their thoughts from failure to success. However, in the modeling process, guidance by the instructor is crucial for better understanding.

One way of reprogramming the mindset is through the four key principles in NLP – outcomes, rapport, sensory acuity and flexibility (O'Connor & McDermott, 1996). Outcomes are the goals and aims that learners would want to achieve. For example, the less proficient learners may aim to learn language like proficient learners. NLP claims that knowing precisely what is wanted helps one to achieve it. The second stage is rapport where similarities are maximised and differences are minimised. Sometimes this stage can also be called as mirroring. It is vital for teachers to build rapport with the learners so that there is trust involved in NLP. Clabby and O'Connor (2004) viewed communication process between therapists and patients in two different aspects – physical mirroring and verbal mirroring. This process can be adapted to the context of teacher and learner. Rapport can be built through body language, eye contact, choices of words, tone and voice. The third stage is sensory acuity. In this stage, learner notices what another person is communicating, consciously and nonverbally. If the less proficient learners aim to learn language like proficient learners, then they should notice the way proficient learners use their choices of language learning strategies and styles in gaining a successful language learning experience. Then, they should compare with their current practice of strategies that are being used. Finally, the fourth stage is flexibility. This is when the learners take responsibility to do things differently if what they are doing now is not working. For instance, less proficient learners integrate the difference(s) noticed into their current practice. The less proficient learners should also be able to keep changing the strategies until they get what they want. It is recommended that the guidance from the facilitator is important throughout this process until the less proficient learners are familiar with these four key principles.

NLP Presuppositions

The following thirteen presuppositions were introduced by Revell and Norman (1997). In order to employ the NLP models effectively, it is best for teachers and students to understand the ideas proposed by the experts. Brief explanation about each of the presupposition is given as follows:

Mind and body are interconnected: They are parts of the same system, and each affects the other

It is understood that a healthy and harmonious lifestyle leads to a better state-of-mind.

The map is not the territory: we all have different maps of the worlds

Due to different backgrounds and upbringings, different people have different experiences of life. Therefore, each individual has his / her own way of learning preferences, thinking processes, and decision making styles.

There is no failure, only feedback...and a renewed opportunity for success

NLP suggests that failure should be viewed as a stepping stone for success. If every unsuccessful learning process is viewed in this way, many other alternatives will be found. As Thomas Edison mentioned "I haven't failed. I've just found 10,000 ways that won't work."

The map becomes the territory: What you believe to be true either is true or becomes true

Because each person has his / her own judgments, opinions and ideas based on his / her perceptions of this world, the actions, behaviors and thoughts too become territoriality. The perception that is created by the individual becomes his / her own reality.

Knowing what you want helps you get it

If the purpose and goal of an individual is clear, he / she is able to focus on his / her resources and efforts to achieve the goal.

The resources we need are within us

In NLP, it is believed that every individual has all the necessary resources needed within. NLP teaches how to access these resources at the right time using the right way.

Communication is nonverbal as well as verbal

In order to communicate effectively both verbal language and nonverbal behaviours have to be taken into consideration. Communication can be improved if these two aspects are given importance to.

The non-conscious mind is benevolent

Learning should be accepted with a fresh and open mindset. It is crucial to be non-judgemental so that learning can take place easily. What is right and wrong or possible and impossible are relative. These things should be accepted as if how a non-conscious mind would accept it.

Communication is non-conscious as well as conscious

Communication happens in both conscious and non-conscious state-of-mind. When an individual is conveying a message verbally, his / her non-verbal cues also contribute to the overall communication.

All behavior has a positive intention

NLP techniques basically change the representation of one's reality in order to achieve the desired outcome. Part of the process is to identify the reasons behind certain behavior because it is believed that every individual behaves in a certain way because of a specific reason. Hence, NLP delinks the intention from action so that it is easier for a person to follow the NLP techniques.

The meaning of my communication is the response I get

In communication, it is commonly believed that it is important to send the intended message correctly to avoid confusion. However, in NLP it is important to evaluate the response one gets from the message sent. A good communicator will check the receiver's response and thus evaluate his / her own communication effectiveness.

Modeling excellent behavior leads to excellence

A successful structured method used by a person can be modeled by the other person for a better result.

In any system, the element with the greatest flexibility will have the most influence on that system

It is crucial for a person to have flexibility to adapt to different alternative methods. If one method is unsuccessful, new methods should be tried.

INCORPORATING NLP AMONG THE LESS PROFICIENT LANGUAGE LEARNERS

Incorporating NLP methods and techniques among the less proficient language learners can create an interesting, creative, and positive learning environment if proper pedagogical considerations are addressed prior to utilisation. The next part of this paper will provide two examples to illustrate how simple NLP techniques are incorporated into language classroom discussions.

Example 1: Mind Mapping

Mind mapping may be an old technique but it is nevertheless proven effective. Mind mapping, developed by Tony Buzan in 1960 is a learning tool that can maximize brain potential in radiant thinking. Wang, Lee and Chu (2010) pointed out that through mind maps, one's attention, coordination ability, logic, reasoning, thinking, analyzing, creativity, imagination, memory, ability of planning and integration, speed reading, character, number, visuality, hearing, kinesthetic sense, and sensation are significantly enhanced because mind map organizes large amount of information systematically. Therefore, mind mapping helps the less proficient learners to grasp the lesson taught easily by providing them with a more wholesome picture. Less proficient learners can use this method as a structured method of learning.

At the end of every lesson teachers can encourage the students to create a mind map as an overall review of that particular chapter. While carrying out this task, teachers may or may not ask the students to refer to their notes. This depends on the goal of the teacher. If the teacher allows the students to refer to their notes of the chapter during the creation of mind map, then the purpose is to test the students' understanding of the lesson. On the other hand, if the teacher does not allow the students to refer to the notes, then the purpose is to check on their ability to remember the ideas taught in the chapter. Both the methods work well depending on the purpose of teacher.

Undoubtedly, this method works well for visual learners. However, teachers can also create opportunities for auditory learners and kinesthetic learners to benefit from this activity. For example, teachers can get the kinesthetic learners to draw the mind map on the white board as a group work. This excites the kinesthetic learners as they get to move around in the class while carrying out the task. Whereas, the auditory learners can explain the mind map created by other type of learners. Auditory learners benefit from explaining the content as this helps them to remember the concept well.

Example 2: Positive verbal and nonverbal reinforcement

As discussed earlier, it is crucial for teachers to create good rapport with the less proficient language learners. This is because this group of learners have high anxiety level in learning language because of their proficiency level. As cited in Feng (2011), research has shown high anxiety in those students

who are less proficient in using English in school contexts and there is a negative correlation between foreign language anxiety and English learning achievement (Liao, 1999; Chan & Wu, 2000). From a large-scale survey of 601 fifth graders from 205 elementary schools in Taipei and interviews with nine English teachers, Chan and Wu confirm this correlation and further identify several causes of language anxiety, including low proficiency, fear of negative evaluation and pressure from students themselves and their parents (Chan & Wu, 2004). Anxiety helps to explain why low-proficient students tend to give up on learning English altogether.

In view of this, NLP can be successfully used to change the less proficient learners' structured mindset in language learning. This can be done through the use of positive verbal and nonverbal reinforcement. Teachers can use positive verbal reinforcement like "good", "that's right" and "yes" instead of negative verbal messages like "no" and "nonsense". Besides that, positive nonverbal reinforcement also can be used such as smiling, nodding, clapping, and sitting near to the students while giving feedback.

CONCLUSION

In conclusion, through NLP, teaching and learning can truly be a very interesting experience because this model promotes learning by using all the sensory elements – smells, feelings, sounds, tastes and images. Less proficient language learners can now experience a successful second language environment. Therefore, this study proposes that the less proficient learners could monitor and emulate the way proficient learners use their strategies, thinking pattern or style with proper guidance by teachers, facilitators, instructors, lecturers and academicians. It is hoped then that the less proficient learners will also reach the same autonomy in language learning as proficient learners.

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Development of a Blended Learning Environment Tool for Tertiary Students of Isabela State University

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ABSTRACT

Academic institutions embraced the power and strength of technology since its existence. It is evident that web-based technologies, online learning specifically offered educators the flexibility and convenience in disseminating knowledge and skills. Ringing of bells was eliminated and replaced by twenty-four hours and seven days a week information over the Internet. However, most of the time online learning developers are more concerned with showcasing the technology-enhanced products rather than enhancing the knowledge aspect as the heart of online learning (Tham & Tham, 2011). Moreover, several review of literatures discussed that social interaction is required for learning and still the best form of learning which apparently became the loophole of online learning. According to Bill Gates, "technology is just a tool. In terms of getting the kids working together and motivating them, the teacher is the most important." Blended learning attempted to merge the strength and influence of online learning and the traditional face-to-face learning. Blended Learning Environment Tool was developed to address the issues encountered in an online learning environment. Students' e-learning awareness and faculty e-learning readiness study was conducted to serve as an input on the development of the tool. The author adapted the actual curriculum of the university in the development. Learning content are generated by gathering subject experts in a forum to prepare instructional materials fit for online learning and tailor output-based activities that will drive the student to be active in a face-to-face environment. As an assessment to the activity, a rubric was constructed to gauge student's learning. Rapid Application Development (RAD) model was used in the development of the tool.

Keywords: Blended learning, online learning, Face-to-Face learning.

INTRODUCTION

Online learning became the partner of educators in teaching students. Instructional and assessment materials are entrusted in this technology to easily disseminate knowledge and skills to the student. Despite of the fact that it offers convenience due to its twenty four-hours and seven days a week availability, online learning has its limitations and issues not to exempt the limitations in a traditional classroom which made online learning covers the problems encountered inside the classroom.

Blended learning has been studied and cited in various researches. It is widely defined by numerous researchers and scholars based on how technology and education merged. Blended learning constantly change its definition based on how it was used in education. In this paper, the stages of development of a blended learning environment tool were discussed. The implementation of the blended learning environment tool in a less equipped university located in the middle of agriculture area is also presented. Recommendations are provided to improve the tool used in this study.

BACKGROUND

The vast information and interconnectivity capability offered by internet made online learning a top pick in providing education in any part of the world. It surpasses educational software applications. Despite of the fact, online learning has its limitations, which are categorized into technological limitations, personal issues, limitations compared to traditional campus, design limitations and other limitations in online learning (Wong, 2007). According to Kamarudin (2004) interactivity issues is one of the barriers of e-learning (i.e. online learning), it was classified into three categories (1) material-to-student interactivity; (2) tutor-to-student interactivity and; (3) student-to-student interactivity.

In terms of material-to-student interactivity issues, Kamarudin, emphasized that to be immediately abreast with the leading technology in education, “providers often concentrates on the delivery tools rather than content.” He argued that, “the tools must be used appropriately, so as to achieve the right impact.” The statement correlates with Tham and Tham (2011), that “Most content developers are more concerned with showcasing their technology-enhanced products rather than enhancing the knowledge aspect of e-learning”.

Second category, tutor-to-student interactivity issue, it is very common to all online learning environment, the lack of immediate feedback and assistance are not provided, which made student encountered the feeling of isolation and results to frustration (Rovai & Jordan, 2004; Wong, 2007; Kamarudin, 2004). Lastly, student-to-student interactivity issue highlights the absence of interaction between students (Kamarudin, 2004). It supports the finding of Ng (2010) which in the study it showed that number of views for online posting is higher than the number of messages posted by the students.

On the other hand, face-to-face learning (i.e. *traditional learning*) has its own limitations where online learning was able to resolve, the limited number of lecture hours in traditional classroom made online learning work extends the teaching and learning hours. But the ambiguity and vagueness of instructions posted in an online environment lacks the motivation and do not have the capability to read student gestures which face-to-face learning made necessary to provide the instruction clearly and inform the educator to extend necessary assistance to students (Chen & Jones, 2007; Rovai & Jordan, 2004).

Blended learning tools and strategy applied in teaching have been utilized since the existence of technology in 1950's up to 1990s (Holden, 2007). The technology applied in instructional materials continuously improving with new innovations. Web technology successfully utilized at its fullest in e-learning, distance-learning, online-learning and virtual learning.

The benefits offered by blended learning found that “*blended courses have the potential to increase student learning outcomes and blended learning results in success and attrition rates comparable to the face-to-face modality for all ethnicities.*” (EDUCAUSE)

However, the great leap of technology advancement in education, lack of resources, obsolete resources and nil internet accessibility, are currently being experienced by developing countries

specifically in various provinces in the Philippines. Isabela, the 2nd largest province in the Philippines with agriculture as major industry made Isabela State University San Mateo Campus hard to establish internet connections. Moreover, latest educational software applications are being installed in the computer laboratory but always failed to achieve the learning it offers due to obsolete computers.

This study presents the development of the blended learning environment tool for Isabela State University San Mateo Campus. The author explains how online and face-to-face learning be appropriately combined with the current resources in the university, identify the things to be considered in the development of blended learning environment tool, the stages of development of blended learning environment tool and the implementation of the tool.

METHODOLOGY

Blended learning is commonly defined as combination, convergence, utilizing both online learning and face-to-face learning. (Simpson, 2008; Lynch & Dembo, 2004; Educause, Volume 2004 Issue 7; and Precel et. al. 2009). It is defined in this study as the merging of the strength and influence of online learning and the irreplaceable capability of face-to-face learning. The issues encountered in online learning in this paper were answered through conducting four specific procedures namely e-learning participant's baseline, blended learning model components, software development model and software development process. Implementation of the tool using the university, community and student resources was also discussed.

E-Learning Participant's Baseline

This approach was used to gauge student's awareness and faculty readiness in e-learning. Aguinaldo & Leal (2009) revealed that the entire tertiary student in the study has access to computer and use the internet in completing their requirements. Faculty had shown the utilization of technology in their teaching methodology and assessment. Learning materials and activities are created to require students utilize the internet. The result of the study became an input on the development and ensures the full acceptance of blended learning environment tool.

Blended Learning Model Components

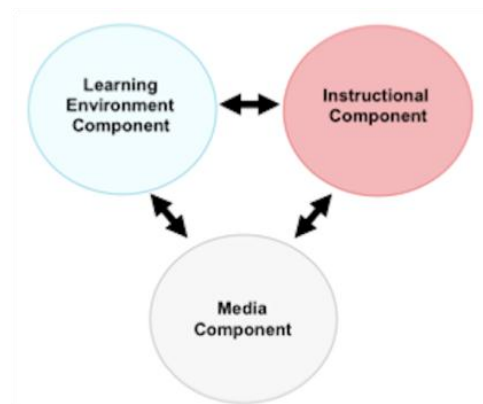


Figure 1. Blended Learning Concept Model, Holden, Jolly (2007)

The feedback/discussion form of the blended learning environment tool was created to exchange ideas with other students and the teacher. It will work under asynchronous mode, thus, ideas can be

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posted anytime at any place. This will be organized based on the course and topic to attain the course objective.

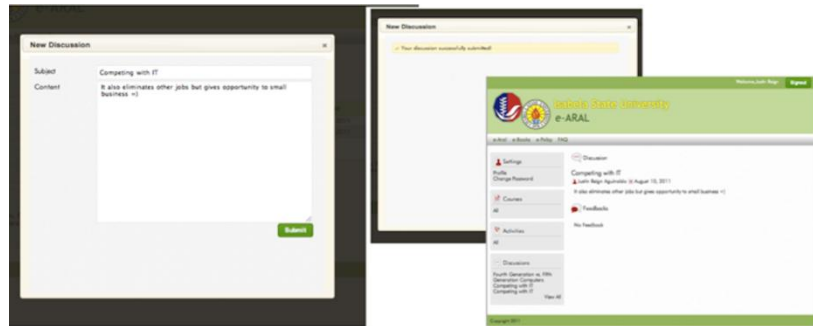


Figure 2. Feedback/Discussion Form of the Blended Learning Environment Tool

This functionality can be done both online and face-to-face to attain the course objective as well as to guide the students on the right learning path. Subject experts are gathered to create a standard course syllabus with its corresponding activities to conform to the instructional component. The output such as the course syllabus and course content are stored on the blended learning environment tool. Communication media are done based on the requirements of the course such as email, skype for online discussion and video conferencing, selecting related videos online to integrate on the course. Blended learning environment tool has the capability to upload answers on the activity to directly record the work of the student.

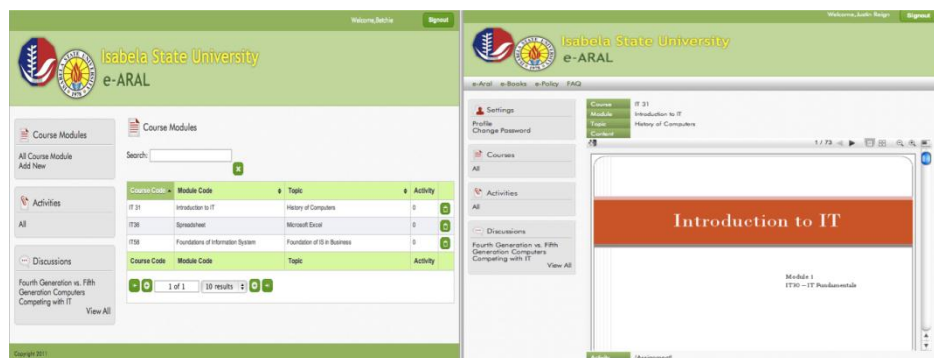


Figure 3. (a) List of Courses and (b) Lectures posted

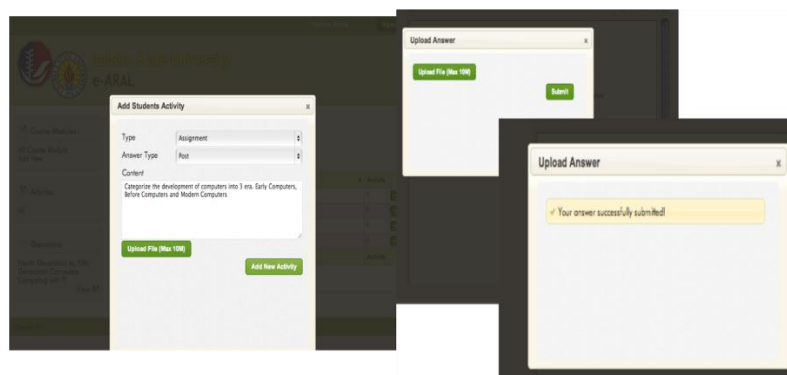


Figure 4. Activity Form

Software Development Model

Rapid Application Development (RAD) model was utilized in the development of the blended learning environment tool. The process involve in this model is highly applicable in the development, after thorough evaluation of the curriculum, content and activity, a prototype (i.e. user interface) was designed and presented to the teachers for evaluation, modifications are made based on the teachers input. Same procedure will be repeated until all information is integrated on the tool. Series of software testing are done before its implementation.

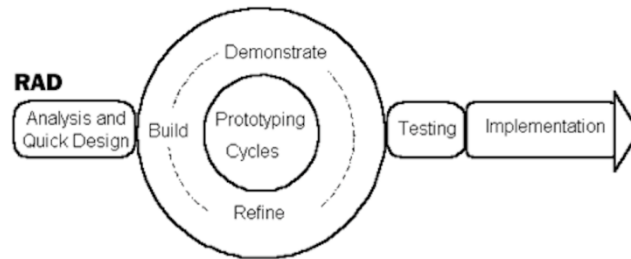


Figure 5. Rapid Application Development Model

SOFTWARE DEVELOPMENT PROCESS

Features and its functions are identified based on the curriculum and teachers requirements. The development platforms utilized are PHP for server scripting and MySQL for database. It runs on the WAMP (Windows, Apache, MySQL, PHP) platform. Source codes and other files are stored on a dedicated server. Levels of security are created to identify the distinction of accessibility of files for each different types of user.

Implementation of Blended Learning Environment Tool

The blended learning environment tool was installed on the server of the campus for it to be accessible through network so that it can be accessed in the classroom. The author also installed it on a dedicated web server for it to be accessed online during weekends and on the given schedule. Since there is no internet connection in the campus, the students were grouped into three (3) to cover the expenses on internet rentals in internet café'. Group activity was provided and individual report is conducted inside the classroom to synthesize the given task.

RECOMMENDATIONS

The tool was developed based on issues of online learning discussed on this study. It is recommended to review and analyze other issues of online learning cited in published researches for future enhancement of the tool as well as to observe the different types of learners and be considered in future improvement of the tool. Furthermore, a new research should focus on the depth of learning attained using the tool and the process of implementation by utilizing internet café' in the community. The advantages and disadvantages should be identified on the way blended learning environment tool was implemented.

CONCLUSION

This study presents how online and face-to-face learning are merged to develop a blended learning environment tool. The tool covers the issues encountered both in online and face-to-face learning to utilize the capabilities of online and face-to-face learning. The tool was developed to address the issues of online learning discussed in this study. Its emphasis is to have continuity of learning done in a traditional classroom, to stimulate social interaction between student-to-student and sustain feedback mechanism between faculty-to-student to achieve the complete learning process. The tool was implemented based on the resources of the university, community and the student.

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The Challenges of International Research Students Studying in an Australian University Context

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ABSTRACT

The flows of international students study abroad in Australia increase year by year. It is a challenge for student study abroad in a new environment. This is especially refers to postgraduate research students. They experienced more difficulties in studies. So, it is crucial to investigate the challenges that international research students face in their studies and daily life at the University of Tasmania. This study aims to provide insightful information and guidance not only for current and future international research students in Australian universities, but also for various educational services and relevant government agencies to provide more effective support to them. Qualitative research method was used to gain deeper insights of the issue. Semi-structured interviews were conducted on ten participants who are selected randomly from different faculties. The interview were conducted face-to-face and individually with each participants. All collected qualitative data were analyzed by Nvivo (version 8). Constructivist grounded theory was the basis of qualitative data analysis. The findings indicated that academic factors, supportive environment, interpersonal relationships with supervisors, physical health and psychological wellbeing are challenges related to academic and daily lives of international research students when they were studying in the Tasmanian tertiary education context. Demographic factors including cultural background, educational background and length in research are influential factors identified in this study. Lastly, coping strategies used by international research students in handling physical health and psychological wellbeing in Tasmania are examined to give references for current and prospective international research students in the Australian university context.

Keywords: International research students, challenges, academic factors, physical health, coping strategies.

INTRODUCTION

International students are significant stakeholders of tertiary educational sector in Australia. The enrolment of international students in the higher education sector reported by Australian Education International in August 2011, ranked the first among all education sectors. It represented a 1.1% growth in enrolments volume compared to August 2010. Furthermore, for postgraduate research enrolments and commencements, they were up by 13.1% and 5.0% respectively over the same

period (AEI, 2011). These figures show that international research students have already become a large and indispensable population group in Australian academic discourse. The dramatic increase of international students and international research students in Australia in recent years has become one of the important incomes for the Australian government and contributes a great deal in Australian economy. In fact, international research students are a group of people from different countries who bring along their diversity of cultures and educational background from their home countries which can be both useful and hindering to their new life in the new environment. They require more time to adjust and adapt themselves to the new environment with a new learning and living style in Australia. A literature review reveals that there are five academic challenges and physical and psychological challenges facing international research students. The challenges they face in their studies in a new environment need to be identified so that appropriate assistance can be offered. Thus this study is to find out the challenges that students faced in graduate research in the Australian university context and coping strategies they applied to cope physical and psychological problems in daily life.

BACKGROUND

The challenges identified in previous review of literatures are divided into two parts: one is related to the academic aspect while the other one is related to well-being and affective aspects of students. In the previous review of literature, there were five identified issues that should be taken into account which are related to the academic challenges aspect. The challenges are language barriers, learning styles, quality of supervision, supportive environment and cultural background. The review of literature also includes challenges which international research students faced in terms of physical health and psychological well-being in a new environment.

Language barriers

In the previous literature reviews, the major concern for international students who study abroad is language barrier (East, 2001 ; Hashim & Zhiliang, 2003; Misra, Crist, & Burant, 2003; Sawir, 2005; Watts, 1999; Wong, 2004; Yeh & Inose, 2003). Language plays an important role in the academic aspect of international students. Both spoken and written English language challenges international students when they are in an English speaking country like Australia. Furthermore, this is more challenging for those who are from non-English speaking backgrounds (NESB) or English as second language speakers, who have little or no practice and exposure to English in their home countries. These conditions mostly apply to students from Asian countries (Jonasson, 2004; Liu, 2001). It is common for international students to have problems in oral and written academic English language usage. According to Rosenthal et al.'s (2006) research, among participants from Asian countries, 24% of international students reported that they had difficulties in written English and 22% in spoken English. This is supported by another similar study which reported that international students faced the most difficulty in academic English oral presentations (Ward & Masgoret, 2004). The lack of English language skills has a direct adverse effect to international students in academic performance and social life (Andrade, 2006; Li, 2007; Mori, 2000). International students find it more difficult to articulate their knowledge in essays or research papers with their limited English vocabulary (Jonasson, 2004; Lin & Yi, 1997). This also block them from communicate and interact well with others in new settings, especially with supervisors. Misunderstanding will appear if students use their limited English language communicate with supervisors who are native English speakers. This will result in students try to avoid themselves from social with others or being isolated, give their opinions in discussion and even withdraw from groups because they afraid of

doing mistakes (Barker, Child, Gallois, Jones, & Callan, 1991; Lin & Yi, 1997). The same situation also faced by international research students when they lack of English language proficiency. They have a greater challenge because they require higher English language proficiency since they are in a higher education level compared to the undergraduate level or diploma certificate students. Higher English language level required for international research students in writing and speaking. According to Dong (1997), international research students face difficulties from the beginning of thesis writing in completing thesis for research if they have low academic English writing skills because more advanced English academic and linguistic knowledge is required to produce a good dissertation or thesis.

Learning styles

Another problem highlighted by international students in the new study environments is the learning style which is different from what they are used to in their home countries (Wong, 2004). The Asian education system employs different learning approaches from western ones, where they focus more on a surface approach to learning that focuses on memorization in order to pass examinations (Leder & Forgasz, 2004; Samuelowicz, 1987). Asian students always labelled as passive learners from the view of Western society and among academic staffs founded in literature (Biggs, 1996; Samuelowicz, 1987; Watkins, 1996). This is resulted by the teaching styles in Asia where teacher-centered approach is employed. It focuses on the teacher as an instructor in transmitting knowledge to students while students become listeners in hearing the teacher rather than engaging in discussions which make students become passive in learning. It is more challenging for international research students when they need to switch from dependent learning style to independent learning style. This makes international research students meet difficulties in conducting research because most research is independent work that requires critical thinking and initiative (McClure, 2003). Meanwhile, there is another issue concerned by international research students in conducting research. It is plagiarism which most international research students not familiar with (Jonasson, 2004). Most international research students may be at a disadvantage compared to local students in conducting research because they are unfamiliar with the policies and educational systems in Australia.

Quality of supervision

In postgraduate research studies, supervision plays an important role in bringing out an intensive, one-to-one interaction between research students and supervisors. This is an important aspect for research students because supervisor is the one who guide them from beginning to the end of research journey (Abiddin, Ismail, & Ismail, 2011; McClure, 2005). The quality of supervision is the key to determine the success or failure in one's research study. Moreover, supervisors have crucial roles in cross-cultural supervisory relationship. International research students need more guides and attentions from supervisors because they need more time to adjust and adapt to the new environment (Burns, 1991). Thus, supervisors should have greater commitment and sensitive to their supervised students' need in order to develop a good supervisor-student relationship. To build up a close supervisor-student relationship, effective communication is one of the criteria (Spear, 2000). Supervisors should make sure they interact well with their supervised students from the beginning of research journey. Besides, there are two factors identified in previous literatures that threaten the relationships between research students and supervisors. Gender is one of the identified factors that influence supervisory relationships. Gender power relations between women and men are very important in determining the success or failure for research study (Deem & Brehony, 2000, p. 161). This is showed in the study of Deem & Brehony (2000) where they found out

that gender equality is an issue that should be taken into consideration in supervision. They found out it is harder for female students to access in supervision compared to male students when they have male supervisors. Another factor is time commitment that should contributed by supervisors to solve students' problems in research and close up the gap between them (Spear, 2000). This is extremely essential for those novice researchers at the beginning of research journey.

Supportive environment

There are two types of supports needed by international research students, which are facilities provided by the university and faculty, including offices for graduate research students, research resources, IT service and others facilities; the other is support from their peers, family, university or faculty staff and supervisors. Lack of supports and poor facilities and office conditions will make students frustrated. This will influence the progress of research among international research students, and may result in difficulties in completing their research and even withdrawing from learning (Abiddin, et al., 2011; Deem & Brehony, 2000; Leder & Forgasz, 2004; Ninnes, et al., 1999; Watts, 1999).

Cultural differences

Cultural diversity has an impact on international students when they are in a new culture. A person's cultural background has great influence on one's learning style. Wong's (2004) study on Asian international students' learning styles highlighted students' learning styles predetermined by culture. For instance, international students from Chinese families are usually considered as passive learners, while those from Confucian Heritage Culture (CHC) always practice rote learning or using repetitive strategy in learning (Wong, 2004). Meanwhile, culture and language have a close relationship for international students with Asian background (Fan, 2010). Culture differences will influence their language learning and understanding. International students have different understanding on the concepts of English language usage based on their cultural backgrounds when they learn English. For example, in Fan's (2010) study, Chinese students are always confused with the use of articles in English because there are no articles in Chinese. In addition, culture also has impact on academic English writing specifically in the dissertation or thesis genre. The writing style is different from culture to culture, for example, Chinese students prefer an indirect and circular model (Dong, 1997). Thus, exposure to a new culture which international research students are not familiar with is challenging for them to adapt to the new culture of Australia.

Physical health and psychological well-being

Another two challenges faced by international research students which indirectly affect their studies and lives in Australia are physical health and psychological well-being. When students study abroad, it is common to have problem in taking care of their health. It is the same situation met by international research students. Normally, they seldom involve themselves in physical activities that helps maintain their health due to the hectic schedule in research. Besides, the weather in Australia is different from their home countries which make them difficult to adapt. Furthermore, as research students, they may neglect their regular meals or not have a balanced diet and meals on time (Rosenthal, Russell, & Thomson, 2006). These are some common physical health problems that international research students have when they are overseas. On the other hand, psychological well-being is another concern for international research students. Yeh and Inose's (2003) study finds out that international students have more psychological problems compared to others local students. A review of literature on the psychological well-being of international students (Rajapaksa & Dundes, 2002; Yi, Lin, & Kishimoto, 2003) notes that homesickness, loneliness, depression and

anxiety are probably the most common problems that will affect international students' well being and studies. Homesickness is the most common reported complaints among international students and international research students (Rajapaksa & Dundes, 2002; Yi, Lin, & Kishimoto, 2003). Similar results were found in another study by Constantine et al.'s (2004) and McClure (2005) that focused on African undergraduate students in an American university and Chinese postgraduate students in Singapore universities, the findings showed that loneliness and isolation were common psychological difficulties for international research students. All of psychological problems will give consequences to research studies of international research students.

RESEARCH AIM AND OBJECTIVES

This research aims to investigate the challenges that international research students face, their perceptions and experiences on the challenges in their studies and daily life.

There are three research objectives in this study as following:

- To identify the types of challenges that international research students are facing while studying at the University of Tasmania in relation to academic and daily life.
- To examine the relationship between international research students' demographic backgrounds (e.g. culture, educational background and lengths in research) with their views and experiences in research.
- To identify coping strategies used by international research students in dealing with their academic problems and in their daily lives while undertaking graduate research course.

METHODOLOGY

Qualitative research approach was utilised in this study to look in-depth on challenges of international research students faced in their studies and daily life in Tasmania. Semi-structured interview were undertaken between researcher and participants face to face. The interview questions were prepared in advance to give a degree of coherence to the elements mentioned by relevant literatures as well as guidelines for researcher in asking questions. Convenience and purposive sampling were used for participants' recruitment. There were in total ten international research students who were from different faculty and currently studying at the Launceston campus.

FINDINGS

Interviews audio recorded files were transcribed and coded to get the data for analysis. The collected interview data were undertaken data analysis which is based on grounded theory. In the data analyzing process, researchers analyzed data manually and electronically with computer-aided qualitative data analysis software to facilitate the data analysis process. The software for qualitative analysis is NVivo version 8 which helps in data coding of interview transcripts. Researcher reads the transcripts carefully sentence by sentence, drawing and dropping the relevant meaning units into the same coding group. New codes were created when new meanings which did not fit into any existing coding groups were encountered. All the discovered codes linked together to form connections, then theme gradually emerged from the sets of data at the final stage of analyzing.

There are five themes with subthemes that were established in this study. The five themes include:

Theme 1: Academic factors

Theme 2: Supportive environment

Theme 3: Interpersonal relationships with supervisors

Theme 4: Physical health

Theme 5: Psychological wellbeing

In theme 1, there were five academic factors identified which were language barrier, time management, research resources, educational and cultural background. These five themes were extracted from interview data of ten participants. As mentioned in literature review above, these five academic factors were major concerns in international research students' studies. They required more time to suit themselves in research studies here. Most participants were worried about the higher level of English language usage in academic writing. Higher English proficiency required by research students in writing compared undergraduate and diploma certificate students. Student 1 mentioned that I am an international student; I do feel some difficulties in English, especially in academic writing. You know, I found it is hard to make something well-structured and nice, or sometimes in writing. Besides student 2 also commented that writing a thesis requires you to have a high level of proficiency in the English language, and in both speaking and writing. You need really good language skills to communicate with all the people that you need to interview and all the participants. However, there is not much problem for participants to communicate with others in English. In term of time management, all participants prioritize their important things. It is more tedious for novice researcher at the beginning of research journey to manage their time because they are not on the right track yet. The same situation was applied to part-time students. Participants do not have problems in searching research resources as they can get resources from library, internet and faculty easily. Lastly, participants with different cultural and educational background have different attitudes in research. Cultural and educational backgrounds can either helping or hindering participants in research studies. Student 9 explained her experience in previous education eased her in PhD study. In educational background, I had experiences in the past where my Master degree was related to PhD study now. So I have a firm foundation which facilitates me in PhD study. Differences in cultural background may bring miscommunications between international research students and English native speakers (university staff, peers, supervisors) in interaction. For instance, student 8 had problems in addressing her supervisors at Australia university context. The way you address your supervisor is different here. In Malaysia, we normally address them as Professor or something, Dr. something or you go by Mr. something, but here, the supervisors are addressed by their first name rather than their surname. The differences of rules and restrictions in the Australian educational system in terms of ethical and referencing issues gave problems to participants. International research students' unfamiliarity with these rules leads them to some consequences.

Apart from academic factors, supportive environment (theme 2) including library facilities and services, graduate research office, IT services and laboratory facilities were important in supporting international research students in studies. All participants satisfied with all facilities and services provided by university in supporting their research studies. Participants were provided complete facilities and services they need in conducting research. In term of interpersonal relationships with supervisors, all participants agreed that this is the main issue which should be given attention in order to help them success in research. They have similar opinions in characteristics of a good supervisor should equipped in produce good quality of supervision. There were knowledgeable and experienced in research field, good planning skills, follow-up students' works, supportive, caring and

respect students' cultures and religions. There was no participant had experienced with bad supervisors. Moreover, factors in influencing supervision quality were identified. All participants did not view gender as a factor that found in literatures, but rather the personalities of supervisors were the factors. Personalities of supervisors determined the supervision's quality. The personality of a supervisor influences his or her attitude in supervision and indirectly influences the relationship with students. (Student 3) All participants were satisfied with the supervisor-student relationship they have. Apart from challenges in academic, participants also faced problems in physical health and psychological well-being which formed theme 4 and 5. As research students, in term of physical health, sleeping time, diet, exercise or outdoor activity and other concerns were important in maintaining their health. Occasionally, they will neglect or forget to have proper meals on time due to hectic life. However, all participants had tried their best to keep themselves in healthy condition to make sure they perform well in research. Furthermore, psychological problems in academic and social life were faced by participants. They shared their coping strategies in psychological problems, which were supports from peers, supervisors and family, relaxing and other special strategies. It is essential for international research students to have their own way in handling their psychological problems.

All themes emerged from interview data fulfill three research objectives. Challenges faced by international research students in academic and life were language barrier, academic writing, communication, time management, research resources, educational background and cultural background in academic factors, supportive environment, interpersonal relationship with supervisors, physical health and psychological well-being. All identified challenges were supported by literature reviews in this research. Challenges identified in this study have close relationship and influenced much by demographic of participants. Demographic of participants including cultural background, educational background and length in research act as influential factors of international research students' perceptions on the challenges they faced. These three factors may affect or benefit them in study abroad. Thus, in order to overcome the challenges, coping strategies used by international research students in handling physical health and psychological wellbeing in Tasmania were examined. All answers were found in interview data which included enough sleeping time, balanced diet, exercise or outdoor activities and other strategies in the aspects of physical health which employed by international research students. Apart from that, varied strategies in tackling psychological issues among international research students were employed. Support from friends, family and supervisors are the major concerns for international research students psychologically. When research students feel too stressed, they will put aside their work in hand and relax before proceeding. Other than that, they also use other personal strategies, such as planning to reach targets, to reduce stress. Thus, coping strategies are ways which suited different people in handling problems they faced.

RECOMMENDATIONS AND IMPLICATIONS

There are two recommendations can be implicated in a broad range of research studies. First, International research students should be well-prepared before going to study abroad. It is essential for international research students do some preparations in their studies, such as reading more articles or books related to research to build up their research knowledge, polishing their academic English writing and oral English language skills; the most important thing is a well-prepared heart to face any challenges. Furthermore, it is wise to be fully prepared in terms of health and psychology before departing to Australia. It is vital for international research students to have information about the country they will study in, for example, the weather, foods, people and culture of the

place. With the full preparation in physical and psychological aspects, it assures the success of international research students in research studies.

Second, supervisors should fulfill their responsibilities in cross-cultural supervision with international research students. Supervisors are keys to research students' success in research studies. From the findings, positive feedback on supervisors was provided by the international research students and they pointed out the importance of supervisors in leading them in their research journey. It is essential for supervisors to take up their responsibilities in cross-cultural supervisions. They should be alert and sensitive to the needs of international research students due to cultural differences. This can ensure international research students achieve their targets within the set time.

CONCLUSION

Due to the increment of enrolment numbers and contributions made by international research students in Australia, international research students have started to get attention from many research interests in different disciplines. Previously, international research students were perceived as a group of sojourners in Australia. Their great contributions to their host countries, especially in terms of economy, culture and research areas have attracted the attention of their host countries. Thus, international research students should not be treated as foreigners in foreign lands, but rather they should be welcomed as important members of the society by their host countries. All the identified challenges in this study become guidelines for current and future students to prepare themselves before study in Australia. Besides, this study also provides insightful information and guidance for various educational services and relevant government agencies to provide more effective support to both international research students and international students.

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The Challenges in Philippine Maritime Education and Training

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ABSTRACT

The importance of maritime education and training (MET) cannot be understated particularly with the current global market scenario and implementation of the 2010 revised Standard Training and Certificate Watch keeping (STCW) Convention and Code. Around 80 to 90 percent of maritime accidents are ascribed to human error. Hence, it is critical that seafarers be well-educated and trained, able to follow orders, manage risks, solves problems, and must be psychologically and emotionally happy to ensure safe, secure, clean and efficient operations for safety of life at sea. With this in mind, there are challenges in MET that the seafarers face which may also somehow directly or indirectly affect them, their family and the maritime industry in general. This paper presents the two main challenges in maritime education and training (MET): the global market supply and demand scenario (covering the issues on shortage, recruitment, retention) and the implementation of the revised Standard Training, Certification, Watchkeeping (STCW) Convention and Code (covering the issues on competency of seafarers) and the role of various stakeholders to recruit, train and retain the seafarers for the safe operation of their vessels.

Keywords: Maritime Education and Training (MET), challenges, Certificate Watch keeping Convention and Code, maritime industry.

INTRODUCTION

Recognizing the significance of highly competent human resources at sea, MET should be enhanced in terms of facilities and equipment, curriculum design, learning methodologies, quality of instruction and in all aspects of ensuring a pool of high qualified and competent marine officers and engineers to man the world fleet. On October 15, 2011, during the General Assembly of the International Association of Maritime Universities (IAMU), the International Maritime Organization (IMO) Secretary General Ethimios E Mitropoulos, in his Keynote address said: *“As human element at sea is critical in ensuring safe, secure, clean and efficient operations, it is only feasible to secure, and to preserve, properly qualified human resources for the maritime industries through effective education and training – based on scientific and academic rigor; the development of a clear linkage between practical skills and management techniques; and an unerring focus on quality.”*

Indeed, the role of MET institutions is vital for the success of the maritime industry. But in essence, a strengthened and amplified cooperation amongst the different maritime industry sectors – government, MET institutions, and shipping companies is very crucial for the benefit of the seafarers and their family and ultimately for the success of the industry. With these concerns, the challenges

in Philippine MET may be summarized into two: Manpower demand and supply (that covers the quantity issues on shortage, recruitment, retention) and amendments in STCW Convention and Code (that covers the quality issues on competency of seafarers) citing various maritime industry scenarios. These challenges in MET have somehow directly and/or indirectly affects the seafarers, who play a vital role in the today's global economy and the maritime industry in general.

BACKGROUND

Education and training holds a key to a successful future for the seafarers, his family, loved ones, and the maritime industry in general. In fact, education and training as key strategies for improving access to employment opportunities of Filipino workers, forms part of the Philippine Development Plan (PDP) 2011-2016 which is anchored on President Aquino's social contract and central strategy in reducing poverty and in building national competitiveness. The global shipping industry continuously provides an attractive career opportunity with a broad international perspective.

Despite the recent global economic crises, the demand for highly competent officers and ratings to man vessels around the world is still going strong. In fact, the Baltic International Maritime Council (BIMCO) and International Seafarers Federation (ISF) Manpower Report (2010) revealed recurrent shortages for officers especially on ship type such as tankers and offshore support vessels. While seafaring remains to be an interesting and rewarding profession, it requires physical and mental abilities and strengths to be able to withstand the challenges at sea. As emphasized by the BIMCO Report 2005 and BIMCO Report 2010 respectively, suitably qualified and high caliber seafarers are required by the industry to ensure safe, secure, clean, and efficient ship operations. On top of that, the health and morale of seafarers are essential in their success as maritime professionals.

The challenges in met and role of maritime stakeholders

Currently, the Philippines remain the largest market for crewing, advantaged by a number of factors: (1) High population growth rate in the country; (2) Absence of more attractive employment opportunities; (3) High unemployment rate; (4) Country's geographical position consisting of approximately 7,100 islands; (5) Private sectors are encouraged to develop marine training facilities with the Philippines having the most number of MET institutions (159) with India as second (130), and (6) Fluency of Filipinos in communicating using English (Baylon, 2011). However, with current global shipping market supply and demand scenario and the implementation of the revised STCW Convention and Code, the Philippines must not be complacent. The overseas seafaring industry has been a major contributor to the Philippine economic growth. Data from the Bangko Central ng Pilipinas (BSP) show that during the first four months of this year, our seafarers have already funneled 1.3B US dollars in remittances, which is 6% higher than the amount remitted during the same period last year. For the whole year of 2010, remittances from Filipino seafarers have reached 3.8B US dollars, accounting for 20% of the total remittances from OFWs that year.

Current Global Shipping Market Supply and Demand (shortage of marine officer's issues)

In 2005, the joint BIMCO and ISF Manpower Report highlighted the very alarming situation on the projected level of the theoretical shortage of marine officers for the global fleet. As shown in Table 1, a theoretical shortage of 10,000 marine officers and an oversupply of ratings were expected. This report added that unless measures are taken to address the problem, the shortage of marine

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officers will escalate to 27,000. Likewise, this report stressed the existence of a global shortage of skilled ratings (machinists, filters, welders, and petty officers) which also needs to be addressed.

Measures have been implemented to alleviate the shortage problem by the maritime stakeholders including the Associated Marine Officers and Seamen's Union of the Philippines (AMOSUP). In 2008, during 9th Asia-Pacific Manning and Training Conference, MAAP President presented that AMOSUP thru MAAP, has carried out various educational and training programs to address shortage and competency issues among the seafarers in cooperation with shipping and manning companies and the government agencies involved in the maritime industry. These programs include: (1) the Academic Ramp Program, (2) BSMT and BSMarE Program, (3) Dual Course (BSMTE) Program, (4) Bridging Program for the Marine Engineers, (5) Voluntary Accreditation of Programs, (6) Cadetship Training Program, (7) Leadership Development Program, (8) other Enhancement and Value-Added Program for Faculty/Staff; (9) Establishment of Professional Career Development Center (PCDC) and (10) Graduate Program Thru its Center for Advance Maritime Studies (CAMS). The latter program aims to make the profession more attractive for management level maritime officers who have accumulated experience of more than 10 or 15 years at sea, to pursue various marine-related qualifications at MAAP with no additional entry requirements. This is to address the perception of seafarers that a career in shipping requires committing oneself to a life at sea which deters many young people from considering shipping as a profession. The objective of CAMS is to motivate young people to consider a career in shipping, with some perspectives on the various career (in teaching, management, insurance, maritime law, and finance, for instance) paths they can pursue, after they have reached a certain level of experience and would like to retire from active duty at sea. It is only in MAAP campus that 24 bungalows are being built so that the officers while studying can bring their family in Bataan to have more time with them just like when they are at home. These programs may not solve the problems entirely but have somehow alleviated the effects of these pressing issues in the maritime industry.

Despite efforts exerted by maritime stakeholders, the recent BIMCO/ISF Manpower Update in 2010 noted some shortages for officers, particularly for certain grades and for ships type such as tankers and offshore support vessels. It is, however, positive that the supply and demand for ratings shows to be more or less balanced. The shortage for officers is still felt in spite of the global economic downturn and the dramatic reduction in the demand for shipping services in the past. Also, BIMCO/ISF Manpower Update 2010 revealed that the levels of trainings of new entrants are maintained or increased in many countries since 2005, notwithstanding the challenging trading conditions in the maritime industry. As revealed in Table 1, the worldwide supply of officers is estimated to be 624, 000 while the demand is 637,000 which implies a shortage of 13, 000 officers in the world fleet.

Table 1. *Global Supply-Demand Estimates* (Source: BIMCO/ISF Reports in 2005 and 2010, www.bimco.org)

Seafarers	2005		2010	
	Officers	Ratings	Officers	Ratings
Supply	466,000	721,000	624,000	747,000
Demand	476,000	586,000	637,000	747,000
Balance	-10,000	+135,000	-13,000	0

The BIMCO/ISF Manpower Update 2010 stressed that this report provides a more comprehensive and reliable manpower estimates; however, the results cannot be directly compared with previous studies. The report explained that supply estimates are based on the numbers holding STCW certificates while demand estimates are based on detailed review of the number, size and type of

ships in the world fleet and revised estimates of manning levels and back-up ratios currently applicable to different national fleets. The supply estimates in 2010 reflects significant increases in seafarer supply in the Far East notably China, India, and the Philippines, as well as in several European nations. Nevertheless, a future pool of suitably qualified and high caliber seafarers can only be guaranteed with improved and sustained training and recruitment programs.

In the next decade, a moderate increase in the number of ships in the world's fleet is projected to increase. Given this scenario, the current shortage of officers is expected to become more severe unless measures are taken to reduce wastage rates from the industry. This further underscores the importance of MET at this time and the years to come. International multifarious or diverse issues faced by seafarers also affect the recruitment and retention. These varied issues include stress, fatigue, workloads, training standards, safety, security and environmental protection. Also, one of the motivations in entering into a seafaring career is financial rewards. However, after acquiring sufficient funds in seagoing, many seafarers opt to take land-based jobs to be with their families. Nevertheless, seafarers should not worry as the maritime industry recognize the significant roles that they are playing and that stakeholders such as the ship-owners, government agencies and international organizations like IMO are doing their best to ensure their safety and security at work. Benefits and privileges are also provided to encourage seafarers to continue in pursuing their seagoing career.

The global shipping community has the power and vision to implement positive measures that can alleviate, if not resolve, this imbalance between the supply and demand of skilled seafarers. The shipping companies in an attempt to recruit and retain seafarers are doing their best to make the profession more attractive by conducting the following : (1) Invest in public awareness campaigns to improve the industry's image particularly on issues related to social responsibility and environmental regulations; (2) Implement innovative incentive; implement tax rationalization programs and ensuring that tax obligations are rationalized for seafarer; (3) Upgrade living conditions onboard vessels including provision of VSAT technologies (installation of internet connections on board using VSAT technology because existing technologies on vessels do not support social networking applications such as Face book, Skype and Twitter);(4) Provide financial rewards and enhance or increase compensation and social benefits packages and programs of seafarers that are consistent with international norms related to compensation, social benefits and training;(5) Adopt an employment practice in which consecutive months at sea have been significantly reduced, such as the approximately four to six months for crews of tankers; (6) supplement the academic training of their employees through dedicated training centers equipped with expensive technology and advanced simulators or through seminars offered by some of the well-established protection and indemnity (P&I) clubs, classification societies and specialized computer-based training (CBT) companies; (7) Fair treatment among crews particularly on compensation, wages set above international norms should only be done in instances where the quality, qualifications and innovative thinking of crew members justify higher wages; (8) Invest in identifying and developing more defined career paths for their employees including more professional options for experienced seafarers that will enable them to transition successfully to life on shore after fulfilling their commitment at sea; (9) Ensure that corporate identity and culture should take precedence over nationalities so that crew members act as "one team"; (10) Introduce greater flexibility on national requirements for crew composition with the goal of achieving a 'transnational' crew that operates cohesively and independently of nationalities; adopt latest human resources management techniques to better understand the needs of seafarers, and; (11) Strengthen the image or 'brand,' communicating corporate culture and core values and demonstrate respect for human capital, that is, the seafarers that operate their vessels.

As listed above, in the light of financial resources, political will, and collaboration to encourage the recruitment and retention of competent seafarers to the shipping profession, the shipping industry is striving to make a career in the field more attractive to young people thru increase compensation and excellent career prospects, but faces numerous challenges including the separation from friends and family while at sea with opportunities to travel and visit exotic places disappeared, as ships now only make short calls in port – often for only 24-36 hours – or indeed remain outside the port for their commercial operations, compared to some years ago when stays could range from one week to 10 days, leaving more time for crew members to get a break from life at sea. It came as no surprise that women (potential maritime officers at sea) are vastly underrepresented in a profession that entails much time away from home. Currently, the global marine industry does not employ women onboard tankers and dry bulk carriers. Women are better represented in the cruise industry and in land-based positions in the shipping industry. This clearly speaks to a lifestyle choice as women balance their family needs with professional decisions.

One of the major problem stressing seafarers and the industry in general is the piracy and armed robbery at sea that greatly affect the seafarers and consequently their families. International maritime issues such as piracy, armed robbery against ships, kidnapping, torture and murder at sea have prevalently affect the shipping industry most notably but not exclusively off the coast of Somalia, in the Gulf of Aden and the wider Indian ocean. It is a given fact that a strong government commitment is required to curtail this problem. In reference to the UN Convention on the Law of the Sea (UNCLOS), it is the task of contracting governments – and other governments who may wish to contribute – to protect the freedom of navigation on the high seas. However, the current commitment by states to anti-piracy forces, is insufficient to curtail, let alone solve the piracy problem, says BIMCO , in its position on piracy issues as seen and read on the BIMCO website. In the light of continued piracy attacks on international vessels and the growing trend for the need of armed security personnel on board ships, the call to strengthen the Philippine anti-piracy training program for seafarers becomes all the more urgent.

The presence of armed security personnel on ships must also be taken into account and how they could impact on the psycho-social well-being of the seafarers. This piracy issue can only be resolved through significant international capacity building. Thus, everyone is summoned to take part in the anti-piracy movement in support to our seafarers. As this piracy is continually threatening global trade and most importantly affects the safety and security of seafarers, everyone is invited to visit www.saveourseafarers.com and be part of the international anti-piracy movement. This campaign was initiated as one of the biggest ever maritime industry groupings comprising of 25% of the world's largest maritime organizations to raise awareness on the human and economic cost of piracy. The campaign advocates committed action and pushes for governments around the world to prioritize six key actions: (1) Reducing the effectiveness of the easily identifiable mother ships; (2) Authorizing naval forces to hold pirates and deliver them for prosecution and punishment; (3) Fully criminalizing all acts of piracy and intent to commit piracy under national laws, in accordance with their mandatory duty to co-operate to suppress piracy under international conventions;(4) Increasing naval assets available in the affected areas; (5) Providing greater protection and support for seafarers ; and (6)Tracing and criminalizing the organizers and financiers behind the criminal networks.

In addressing the retention problem, apart from giving up-to-date trainings and assessments to address quality and competency issues, companies recognize that seafarers to be stable, contented, and safe should give attention to their families. As the inevitable separation from family and home affects the health and morale of seafarers, the vital role of their families should be enriched to

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ascertain healthy, competent and productive human resources at sea. SIRC Study (2002) suggested the following ways to reduce the strain of a seafaring life: “ (1) Shorter trips (preferably no longer than four months);(2) Paid leave of a comparable length to sea time; (3) Continuous employment, rather than employment by voyage; (4) Training time to be added to leave period;(5) Opportunities for partners (and children where possible to sail; (6) Improved access to cheaper communication; (7) Increased contact between seafarers’ partners and their employers; and (8) Opportunities for seafarers’ families to make contact with each other while crew at sea. Most of these, if not all, are availed by seafarers especially those with management positions.

On Implementation of the Revised 2010 STCW Convention and Code (competency issues)

On competency issues, maritime accidents prompted by human error as well as results of various studies or assessments triggers issues on competency of seafarers and the importance of standards. Competency and standards are embodied in the STCW Convention and Code. It stimulates challenges in the MET sector which holds the key in ensuring highly competent seafarers to man international vessels.

Since 2005, the Philippines have been a regular beneficiary of IMO’s Technical Assistance on MET. Hosted by MAAP in Mariveles Bataan campus, IMO conducted a seminar -workshop on the Quality Standards System (QSS) which has greatly contributed to the improvement of the country’s system in the administration of MET and certification. Furthermore, Year 2010 in June is considered as a special year in the world of MET as it shall always be associated with the diplomatic adoption of the historic amendments to the STCW Convention and Code under the auspices of IMO in Manila. It is collectively been named the Manila Amendments which is set to be enforced on January 1, 2012 under the tacit acceptance procedure. It is aimed at bringing the Convention and Code up to date with developments since they were initially adopted in 1978 and further revised in 1995; and to enable address issues that are anticipated to emerge in the foreseeable future. It sets an international benchmark for the MET of seafarers as it has been devoted to raising the profile of seafarers and improving as well their conditions. It includes important changes to each Chapter of the Convention and Code which is significant in shaping the MET of seafarers and their respective careers at sea. The Manila conference was also put at the epicenter of the highlights of Year 2010, “Year of the Seafarers”, as the IMO has also designated June 25, 2010 as the “Seafarers Day”, to pay tribute to global seafarers for their unique contributions to society and in grateful recognition of the crucial role they play in the smooth running of the international trade in a hazardous environment for the global economy. It is also interesting to note that on June 25, 2010 at the Philippine International Convention Center (PICC) in Manila, the IMO Secretary General Mr. EE Mitropoulos in his closing statement of congratulations and gratitude addressed to the IMO delegates of the diplomatic conference for the concerted efforts undertaken, had also made special mention about his visit on June 22, 2011 at MAAP campus in Mariveles Bataan Philippines and he cited to wit, “ I will always remember my visit on Tuesday at the Maritime Academy of Asia and the Pacific in Bataan (the same Academy that has provided the uniformed cadets, who brightened with their presence, style, discipline and excellent manners the corridors of this Conference Hall .”

To translate the revised STCW requirements into national regulations with the aim of expediting their implementation in the Philippines, on July 19-23, 2011, hosted once again by MAAP in Mariveles Bataan, the Maritime Training Council (MTC) organized a 5-day national seminar workshop on familiarization with the Manila Amendments to the STCW Convention and Code with Hon. Danilo Cruz, Undersecretary of the Department of Labor and Employment (DOLE) as Keynote

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speaker. The lecturers and facilitators were: the IMO Head of Maritime Training and Human Element Section. Capt. Ashok Mahapatra; Chief Examiner from Shri Lanka C/E Leslie Hemachandra, and Director and Principal of Anglo Eastern Maritime Training Center from India Capt. Deboo. The occasion was graced by MARINA Deputy Administrator for Operations Atty. Gloria V. Banas, IMO Regional Coordinator Atty. Brenda Pimentel, and MTC Executive Director Ms. Liberty Casco and participated by representatives from various government agencies, concerned private sectors and maritime associations.

The national seminar provided the stakeholders in the maritime industry with better understanding on the requirements and implications of the Manila Amendments on MET of Seafarers. In summary, there are 16 major amendments to the STCW that were thoroughly discussed: (1) One administration to issue COC and endorsements ;(2) Common medical standards for seafarers in all countries; (3) Revalidation requirements rationalize for the benefit of the seafarers; (4) Training on modern technology introduced; (5) Engineering training updated to include emergent and modern engineering concept; (6) Training and certification requirements for electro technical officers introduced; (7) Training and certification requirements for able seafarers and engine was introduced ; (8) Leadership training requirement for seafarers; (9) Competency standards for personnel serving on board different types of tankers introduced; (10) Training guidance for personnel serving on Board Ships operating in polar waters;(11) Training Guidance for personnel operating dynamic positioning systems; (12) Safety and security training requirements separated to avoid confusion; (13) Training guidelines for seafarers relating to action; (14) Introduction of Modern training methodology in distance learning and web-based learning; (15) Hours of rest harmonized with the requirement of Maritime Labor Code (MLC) to reduce fatigue ; and (16) Requirements introduced to avoid alcohol and substance abuse.

As emphasized, STCW convention is concerned about the seafarers' common standards, trainings requirements, certification requirements with only one administration responsible to oversee, assess and issue COC and endorsement. On the revised STCW, the challenges in today's Philippine MET may be summarized into two parts: meeting the requirements of international maritime regulations and upgrading of MET. On one hand, in meeting the requirements of international maritime regulations, the STCW Convention and Code stipulate standards which should be complied by the maritime stakeholders. Government thru MTC has already established a National Quality Standard System (NQSS) that integrates the quality system of all government agencies involved in MET of seafarers, certification and endorsement and revalidation of certificates. The agencies include the Philippine Regulation Commission (PRC) for marine deck and engine officers, Technical Education Skills Development Authority (TESDA) for ratings, and Commission on Higher Education (CHED) for Bachelor of Science in Marine Transportation (BSMT) and Bachelor of Science Marine Engineer (BSMarE) courses and National Transmission Commission (NTC) for radio operators. Raising the quality of MET can be challenging especially for the Philippines being the major supplier of maritime manpower to foreign shipping. Training institutions are considerably pressured to meet the requirements of international maritime regulations to ensure quality and competency of seafarers. On the other hand, in upgrading MET, this demands strong commitment amongst all maritime stakeholders especially that this entails focus on quality, and sufficient fund to be able to acquire the much needed physical and technical aspects of improvement. Quality improvement in MET entails economic constraints. It is for this reason that all government agencies are currently working hand in hand in cooperation with other private organizations on the development and upgrading of courses required under the STCW Manila Amendment.

During the opening ceremonies on July 19, 2011, for the national seminar on the Manila Amendment of STCW at MAAP campus, the DOLE Undersecretary Danilo Cruz in his message cited that: "the courses for able deck and engine seafarers have been completed by TESDA and adopted by MTC early this year. A long list of basic and advanced courses for maritime professionals is also in the pipeline for development, review and upgrading in line with the requirements of the Manila Amendments. Beyond the development and review of courses, the government is also committed to improve the administration of MET system and resolved to conduct regular inspections to accredited training providers. On the other hand, during the closing ceremonies on July 23, 2011, Capt. Ashok Mahapatra emphasized that: "the seafarers must be guided and they must be informed of the government's action plan for them, as what concerns them also concerns their family and loved ones. However, all these can only be accomplished by the government upon creation of one maritime administration responsible for the issuance of certificate of competency (COC) and endorsements." As stated by Capt. Mahapatra, only one administration should be in-charge in the issuance of COC and endorsements; in the assessment procedure, and in the overall overseeing, monitoring and evaluation of the STCW implementation as amended in June 2010. This administration as an independent body may authorize training institutes to issue COC mainly under Chapter VI of the Convention. However, with this authority comes corresponding responsibility for the training institutes to ensure that proper assessment is carried out within quality standard system with procedures and processes and those regular audits may be conducted by the administration at any given time without notice. As the new STCW is known as Manila amendment, it would be prudent for the Philippines to be the first country to complete and submit the requirements of the Convention on or before the implementation on January 1, 2012. Furthermore, during the same closing session, the Philippine Association of Maritime Training Centers, Inc (PAMTCI) President C/E Alfredo Haboc on behalf of the private sectors who participated on the said national seminar-workshop had read a Resolution, institutionalizing one administration responsible for the issuance of COC and endorsements for the Philippines to be compliant and not jeopardize its stand as the premier supplier of seafarers with 4 recommendations summarized as follows: (1) a unified stand for the Philippine government to designate one administration on or before January 1, 2012; (2) all government agencies to unite and agree among themselves; (3) the Office of the President to prioritize a Bill designating one administration tasked to oversee the various concerned government agencies for the implementation of the STCW as amended, and; (4) to recommend to House and Congress the immediate passing of the Bill into a Law not later than January 2013. Further, In the article of Yul Malicse (2011) published at the Philippine national publication and on-line publication , he reported that the participants led by Capt. Victor S. Del Prado MM , C/E Alfredo G. Haboc MM; Dr. Angelica Baylon and Merle Jimenez-San Pedro, read a resolution on July 22, 2011 at the end of the seminar-workshop , calling the attention of IMO that *"under the current regime, the implementation of STCW Convention in the Philippines is 'fragmented' into various government agencies, and therefore, "do not conform with the STCW Convention which requires only 'one' Administration responsible for 'all regulations of the STCW as amended."* Further emphasized on the report that the participants before the Associated Marine Officers' and Seamen's Union of the Philippines (AMOSUP) Exec VP Vice Admiral Eduardo Ma. R. Santos (AFP, Ret.), who is also MAAP President;, and other prominent maritime industry stakeholders, had clearly stressed that : *" the standing of the Philippines as a leading seafarer-supplying country in the world, as well as the employment of Filipino seafarers on board international registered vessels may be "jeopardized," if the STCW requirements cannot be complied with".*

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

In connection with the MAAP hosting of the 19-23 June 2011 national seminar workshop on familiarization with the Manila Amendments to STCW Convention and the emerging issues that the maritime industry is confronted with, the MAAP Director for Research and Extension Services interviewed various private stakeholders during break time on what the national government's development plan should consist for the STCW implementation. The following have been suggested for the proposed actions by the Philippine government: (1) Make significant investments in establishing and supporting MET programs; (2) Recognize certificates from maritime universities and academies as equivalent to bachelor degree; (3) Identify and develop career paths (example: banking, insurance, law, and operations to increase professional mobility and enable experienced seafarers to transition back on shore upon reaching a certain level of age and experience, or for specified periods during their commitment; (4) Build greater awareness of the maritime profession among young people; (5) Reduce personal taxation or eliminate them on seafarers' income; (6) Enhance social benefits for employees such as compensation for illness and coverage of repatriation expenses; (7) Provide partial coverage of the social security contributions; (8) Ensure that the STCW certificates issued in the Philippines are recognized in other countries; (9) Standardize MET programs and credentials so that degrees and graduates are accepted across borders, (10) Expand maritime curricula to meet the needs of individuals operating in a complex global environment, incorporating courses in decision-making, ethics, multi-cultural relations and foreign languages, and; (11) Enhance access to quality MET by encouraging partnership of the public and private sectors. It would be prudent that the various issues, comments and suggestions from the private sectors be validated from various maritime government agencies to get their viewpoints and respective action plans for the implementation of STCW.

The participants are one in saying that the national government should give appropriate emphasis and must demonstrate stronger commitment to this task through a well-developed plan. Further, as technology rapidly transforms the shipping industry, MET institutions must collaborate with shipping industry, the end users of graduates to ensure that their MET programs are current and relevant to the industry. MET institutions are challenged to update training programs and educational methods. The pressing problems for MET institutions include having : (1) Latest technology in terms of facilities and equipment like simulators and other supporting technologies; (2) Highly qualified and experienced instructors; (3) Well-designed and updated curriculum, and other requirements (e.g. support time on modern vessels to gain first-hand experience with current technologies; (4) Encourage a more practical orientation in teaching, not only on the theoretical aspects of the profession because practical learning is favored over theoretical learning in marine degree programs, with access to current simulation technologies and opportunities to obtain work experience serving as a cadet. To ensure that students or trainees will obtain the knowledge and skills necessary in their maritime profession, it is the role of MET institutions to empower the seafarers or future seafarers to be competent and able to operate modern ships which are designed and built to the highest technical standards. Moreover, closer cooperation among MET institutions should also be strengthened to establish programs on faculty/staff exchange, to share of expensive facilities and equipment, and to undertake trainings of instructors. On the other hand, ship-owners or shipping companies are encouraged to support improvement plans in MET to ensure that they will employ qualified seafarers who will man their vessels.

While seafaring profession is no doubt a lucrative career, it requires rigorous educational trainings and genuine interest in this very challenging field. Even after taking up a degree in BSMT or BSMarE, aspiring ship officers are mandated to undertake various competency trainings and assessment as

well as to upgrade their licenses. While on vacation from on-board jobs, seafarers are troubled with having to take various trainings instead of spending their time with their loved ones or families. To assist seafarers upgrade their skills and competency levels even while onboard, various training schemes have been developed such as e-learning, computer-based training, and other related techniques. Therefore, they are encouraged to avail of these opportunities, for them to develop their skills and competencies worthy of trust and confidence by their employers. Officers are compensated significantly higher than ratings due to the more demanding and challenging educational requirements they must satisfy and the greater responsibility they bear for the safe operation of a seagoing vessel. On one hand, families should be understanding of seafarers when they undertake the relevant trainings and assessments required to ensure their competency as these competency requirements aids in reducing the potential of maritime accidents. Also, families, especially the spouses, should ensure that communication line are open at all times, must take good care of home of family matters, and ascertain proper and wise management of family finances to reduce the burdens of seafarers and encourage their sons to enter the maritime world.

CONCLUSION

The quality of MET varies significantly by country, lacking universal degree standards for MET to be recognized across borders. However, with the challenges in today's MET and with all the maritime stakeholders joining hands so that MET would be supplemented by more onboard training, more of practice-oriented and enhanced by current technologies and simulators with competency to be assessed against the industry's standards, we are positive that MET qualifications and certifications would be more broadly recognized by other countries and that there would consistency in the competency of officers from various parts of the world. This would ensure safe, secure, clean, and efficient ship operations of life at sea, hence prevent maritime accidents. This would promote the maritime profession, making the Filipino seafarers in demand by shipping companies to manage their business resulting to continuous work opportunities, promotion, better pay which will all be beneficial for the seafarers' family and the maritime industry in general.

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Innovation Development of Risk Preventive Management System for Rubber Smoked Sheet Flat Plant

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ABSTRACT

The objective of this research is to developing innovation management system of risk preventive for rubber plantation and rubber smoked sheet flat plant. Focus on developing system comply and support with ISO31000:2009 Risk Management. Which started from the design of framework for managing risk management following by ISO31000:2009 risk management process. Proceedings are follows; establishing the external and internal context of the risk management process, defining risk criteria and risk assessment (identify risk, analysis risk and evaluation risk) that covers all 5 sides are Strategic Risk, Operational Risk, Financial Risk, Hazard Risk and Environment Risk. This found that there are 3 extreme high risks and 9 high risks. So plan procedure for treatment risk then created system for monitoring and review. As the results after risk treatment follow procedure plan, it found that level of risk is decrease to the risk level that acceptable. In summary after have risk management system, it is found all extreme risk and high risk reduced to acceptable level of risk. It can also monitor and review risk consistently. It can prevent or decrease another loss and warning all of risk that may happen from risk or other problem related. That will support for rubber plantation and rubber smoked sheet flat plant operating effectively, achieve its goals, and have a risk management in organization properly.

Keywords: Risk management, risk management system, ISO31000:2009, innovation, rubber.

INTRODUCTION

Goal of the business is to drive the business target of the organization by maintaining a minimum wastage of resources. Business activities are often faced with the uncertainty of the risk factors. The risk factors are within and external risk factors. All the risks are an obstacle to the goals of the organization because of loss or damage to the organization such as manufacturing, operation process, financial, safety or environment. If the organization can operate without regardless of risk or an appropriate risk management system will lead to achieving the goal of the organization. Therefore, many organizations have introduced the concept of risk management applied to their organization because of the risk that can occur with all organizations and all industry sectors.

The study of information about rubber plantations in Thailand found that rubber plantations and rubber smoked sheets flat plant as a small business or a family business. No system for managing an organization. As a result, the organization have to be face the occurrence of various risks such as

problem of the machine, problem of the individual, conflagration, or environmental problems, etc. Therefore, the risk factors that to be affect directly to the goals of the organization. To reduce losses, impact, or reduce the chance of risk. Thus has been studied about the risk management and found that the ISO 31000:2009 risk management is appropriate to resolve this issue.

The objective of this research is to development of risk preventive management system for rubber smoked sheet flat plant applied based on ISO 31000:2009.

BACKGROUND

Natural rubber products are in high demand both local (Thailand) and abroad. Particularly demand for natural rubber in Thai found that many industries still need demand for natural rubber at a high rate. Especially, the tire industry has the highest demand followed by the gloves rubber industry, rubber band, and other rubber industry (Department of Agricultural Economics, 2010, pp. 70-76). As a result, the rubber is still an important economic plant in Thailand. In addition to increasing domestic demand and then exports of natural rubber in Thailand also have export value of 397,079.8 million baht (Department of International Trade Promotion, 2011). In addition, Productivity for export including ribbed smoked sheets, crepe rubber, block rubber, and latex.

Thailand exports volume of ribbed smoked sheets at high is ranked the 2nd by the export of ribbed smoked sheets that has a higher value when compared with the value of exports since 2009 Thailand exported 686,359 tons of ribbed smoked sheets and has a value of 42,896 million baht. But in 2010, Thai exports of ribbed smoked sheet in the equally with year 2009 was 691,204 tons, but the export value up to 72,828 million baht. (Office of Agricultural Economics, 2010, p. 29) Because of the higher prices makes the farmers and entrepreneurs to pay attention to production of ribbed smoked sheets including support from the government, resulting area of rubber plantation increased. But as a result of intensive cultivation and production of rubber sheet of the farmers is not be a technical basis then make the productivity has low efficiency because process of rubber smoke produced is low quality and lack of proper maintenance.

Thus the main problem is in the production process. In Thailand, the rubber smoke sheet flat plant was a lot of size or style that is different. There are no standards for rubber smoke sheet flat plant in any way because the needs of their respective owners.

The rubber smoke sheet flat plant in Thailand was found has three styles:

- a) The rubber smoke sheet flat plant from a private company.
- b) The rubber smoke sheet flat plant of the farmers.
- c) The rubber smoke sheet flat plant by Cooperative Fund of rubber.

The rubber plant all of the three models are also different in many aspects. Especially the results of quality of the output as ribbed smoked sheets that production has a quality uncertain. Although the factory of rubber smoke sheet flat plant was similar in overall structure. However, when studied in detail and then found that there are different. For example size of the plant, size of pipe smoke, fuel type or time to smoke etc. When looking at an overview of the products produced, the results reflect that process problem is in rubber factory. The problem of the production process is different and not standardized that make the overall quality of the Thai rubber smoked sheets are varies and mostly low quality. And that is why buyers are concerned about the productivity of Thailand.

In conclusion, the ribbed smoked sheets industry has problems in many aspects. In particular, the production process has many risk factors that may directly impacts to the organization. Therefore,

to develop and improve processes to achieve quality output is required to have appropriate management systems for the rubber industry. And ISO 31000:2009 Risk management process it is most considered appropriate for development innovation of risk prevention system in rubber smoke sheet flat plant.

DEFINITION OF RISK MANAGEMENT

For Kittipan Kongsawaskiat (2011, p. 63) defines risk as the uncertainty of the event. It can't not be predict when that will happen. But the risk is likely to occur more or less in the company. Generally, risk is defined as an event that uncertainty resulted in the loss of areas especially human resources and the financial impact (Condamin, Louisot, & Naim, 2007, p. 3). And (the International Organization for Standardization [ISO], 2009, p. v) point out that organizations of all types and size face internal and external factors and influences that make it uncertain whether and when they will achieve their objectives. The effect this uncertainty has on an organization's objectives is risk.

Enterprise risk management system (ERM) is a system or process, and act consistently across the organization. Set up and used by personnel at all levels of the executive committee, as well as personnel at different levels. The staff at each level may have an understanding of how risk management is different. Depending on the background of each and what is the knowledge of the risks of the enterprise must understand the cause (Kittipan Kongsawaskiat , 2011, p. 10-11).

Risk management system is recognized internationally and has been used widely including:

- a) The Australian / New Zealand Standard on Risk Management (AS / NZS 4360:2004)
- b) Enterprise Risk Management - The Committee of Sponsoring Organizations of the Tradeway Commission (COSO)
- c) ISO 31000:2009 Risk management

After studying the concept and principles of the three systems were found in a similar managed the risk. The details of the following:

- a) Australian / New Zealand Standard (2004, p. 7-23) Concept of risk management principles from The Australian / New Zealand Standard on Risk Management (AS / NZS 4360:2004) have seven steps as following: a) Communicate and consult, b) Establish the context, c) Identify risks, d) Analysis risks, e) Evaluate Risks, f) Treat risks and g) Monitor and review.
- b) The Committee of Sponsoring Organizations of the Tradeway Commission (COSO) has developed a framework for risk management enterprise integration (Enterprise Risk Management - Integrated Framework) to serve as a framework for the management of risks to organizations. There are eight steps as follows: a) Internal Environment, b) Objective Setting, c) Event Identification, d) Risk Assessment, e) Risk Response, f) Control Activities, g) Information and Communication and h) Monitoring (Committee of Sponsoring Organizations of the Tradeway Commission, 2004).
- c) The International Organization for Standardization (ISO) has developed guidelines for risk management from an international standard called "Risk management - Principles and guidelines" by the principles and processes that are similar to the two systems mentioned above. The details are described in the next section.

INNOVATION DEVELOPMENT OF RISK PREVENTIVE MANAGEMENT SYSTEM FOR RUBBER SMOKED SHEET FLAT PLANT ISO 31000:2009 – Risk Management

Risk management can be applied to an entire organization, at its many areas and levels, at any time. Risk management process as part of management need to create a culture and practices are appropriate and consistent with the organization's business processes (ISO, 2009, p. 13-21). ISO 31000:2009 is a standard procedure that is similar to the standard AS/NZS 4360:2004 (Purdy, 2010, p. 883). ISO 31000:2009 consists of five parts including:

- a) Scope
- b) Term and definitions
- c) Principles
- d) Framework
- e) Process

Risk management process has five steps as follows: (Figure 1)

- a) Communication and consultation
- b) Establishing the context
- c) Risk assessment
 - i. Risk Identification
 - ii. Risk Analysis
 - iii. Risk Evaluation
- d) Risk treatment
- e) Monitoring and review

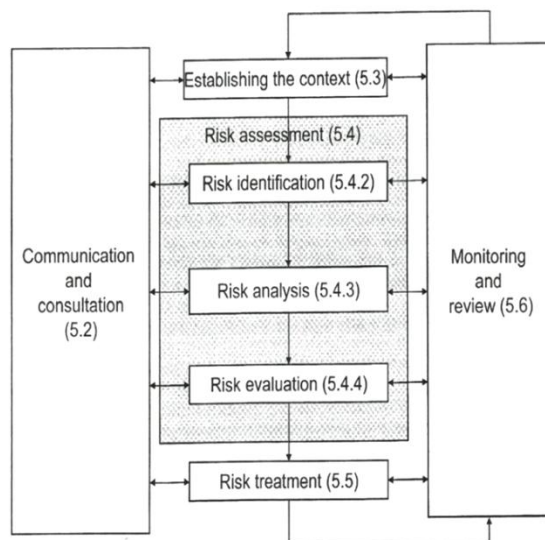


Figure 1. Risk management process

The next step is process of implementing the risk management process for applied to the rubber plantation and the rubber smoke sheet flat plant. Implement of sorting procedure by ISO 31000:2009.

Process of development

This process of development is bringing ISO 31000:2009 risk management system applied for case studies. Details are as follows:

The first step is that communicate with people in the organization case studies such as manager, employee or labor about the ISO 31000:2009 Risk management and set team for responsible in risk management. The next step is establishing the external and internal context of the risk management process and defining risk criteria follow by the organization's business plan or business process chart.

An important note is to make obvious that where is area or unit in organization for attend to risk management project. When has set rules and criteria are appropriate. Thus do step of risk assessment: The risk assessment process consists of three main areas of risk identification, risk analysis and risk evaluation.

After assessment of the risks this result is a level of all risks within the organization. Next step is risk treatment follow criteria for treatment or respond risk. There are five ways include avoid the risk, reduce the likelihood, reduce the consequence, transfer the risk and retain the risk. The final step is when the risk can be treatment finish must have monitoring and review risks consistently. For the process of development that found to be related since principles, framework and process.

Finally, the all principle, framework and processes can be modified to suit the circumstances of the organization.

RESULTS

For the innovation development of risk management system follow ISO 31000:2009 was developed process for use with rubber plantation and rubber smoked sheet flat plant. The results can be summarized as follows:

A) Type of Risk

After establish the external and internal context of the risk management process found that to be specify the type of risk coverage for all of risks within the organization, there are 5 types show in table 1 – type of risk.

Table 1. Type of risk

No.	Type of Risk	figure
1	Strategic Risk	2
2	Operational Risk	51
3	Financial Risk	3
4	Hazard Risk	15
5	Environment Risk	9
Total		80

B) Risk Assessment

For the risk assessment: Is output from 3 step include risk identification, risk analysis and risk evaluation. The results of risk identification from risk of 5 types found that the risk of all 80 risks: strategic risk 2 risk, operational risk 51 risk, financial risk 3 risk, hazard risk 22 risk and last environment risk 9 risk that show in table 1. And the results of risk analysis and risk evaluation are show in table 2 - level of risk as follows: level of low 7 risks, medium 61 risks, High 9 and Extreme 3 risk.

Table 2. Level of Risk

No.	Level of Risk	figure
1	Low (L)	7
2	Medium (M)	61
3	High (H)	9
4	Extreme (E)	3
Total		80

C) Risk Treatment and Monitoring and Review

After the risk assessment indicated that 12 risk need to treatment of risk are 9 high risks and 3 extreme risks. When treatment risk completed, Next step is the monitoring and review of risk that score from analysis risk is decrease the detail show in table 3 - level of risk after treatment risk.

Table 3. Level of Risk (After Treatment Risk)

No.	Before					Treatment	After			
	Code	L	C	Score	Level		L	C	Score	Level
1	E001	5	4	20	E	Reduce the consequence	5	2	10	M
2	E003	5	4	20	E	Reduce the consequence	5	2	10	M
3	F003	4	4	16	E	Avoid the risk	2	3	6	M
4	O027	5	3	15	H	Reduce the likelihood	3	2	6	M
5	O041	5	3	15	H	Reduce the likelihood	3	1	3	L
6	O010	3	4	12	H	Reduce the consequence	3	2	6	M
7	O024	4	2	12	H	Reduce the likelihood	2	2	4	M
8	O049	3	4	12	H	Reduce the likelihood	3	2	6	M
9	H007	4	3	12	H	Reduce the likelihood	2	3	6	M
10	H009	4	3	12	H	Reduce the likelihood	1	3	3	L
11	E004	4	3	12	H	Reduce the consequence	3	2	6	M
12	E005	5	2	10	H	Reduce the consequence	3	1	3	L
Note: L = Likelihood, C = Consequence, Score = L x C										

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

The possibility for the future is likely to be developed a risk management system for the rubber industry, agriculture industry, small-medium business or family business. For development that is expected will be in new technology or develop software and operating system will be monitoring the risks for to be warning the risk all time automated. Because is a business support system than this system should be high effective, reliability and high data security.

In the future might have developed a robotic for support to check about danger or disaster risk and solve problems in areas such as rubber plantations and rubber smoked sheets flat plant in southern border of Thailand. This is a possibility because many countries are faced with the disasters and natural disaster. In the future may be combination theory about risk management and other disciplines to apply for benefits next.

CONCLUSION

The innovative development of risk preventive management is considered as the process innovation because create the new system is developed to suit the organization. For rubber smoked sheet flat plant the risk management system has helped the organization to know risks involved internal and external risk, know how to handle and manage risks appropriately and remedy the situation quickly. There are ways to tackle the problem and prevent risk or if the risk occurs it can fix the problem properly, reduce costs and save resource efficient. In addition to helping resolve the risk, the system make to help enterprise stimulate development as well. For example the risk of production or operations process in research indicates that the risks are concentrated in this process. The results reflect that why have least product, why have to sell their produce at low cost and know the causes of those problems that occur because of any reason in order to identify solutions and manage those risks properly. When the organization's problems and employees or workers have an understanding of the processes of risk management to develop it the good way for improve work efficiency. It also allows organizations that are conducting business activities with environmental careful and environmentally friendly.

For the innovation development of risk preventive management system must be operate continuously and consistently. Because of all risk factor can returned to the enterprise at any time.

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Acemannan Stimulated Dentine Sialophosphoprotein Expression in Human Dental Pulp Cell via P38 Mitogen Activated Protein Kinase

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ABSTRACT

Acemannan, the polysaccharide extracted from aloe vera gel has been reported its efficacy to enhance oral wound healing and dentine regeneration. Acemannan was able to stimulate collagen, dentine sialophosphoprotein (DSPP) and mineral deposition in human dental pulp fibroblast. However, the underlying molecular pathway of acemannan stimulation on DSPP mRNA expression has not yet been investigated. In this study, effect of acemannan on dentine sialophosphoprotein expression in human dental pulp cell via p38 mitogen activated protein kinase (MAPK) signal pathway were investigated. Human dental pulp fibroblasts were treated with acemannan. The expression of DSPP mRNA was determined by Reverse Transcription-Polymerase Chain Reaction (RT-PCR) technique. The phosphorylation of p38MAPK, with and without specific p38MAPK inhibitor namely SB203580, were determined by western blot analysis. Acemannan, at 4 mg/ml significantly, stimulated DSPP mRNA expression. The phosphorylation of p38 MAPK was reached the maximum level at 15 minutes, and gradually declined from 30 to 60 minutes of incubation. At 15 minutes incubation time, acemannan stimulated phosphorylation of p38MAPK up to 3.11 ± 0.09 fold compared with control group. Cells pretreated with $10 \mu\text{M}$ SB203580 for 1 hour, showed reduction of phosphorylation fifty one percentage after treated with 4 mg/ml concentration of acemannan, compared with acemannan treated group. In conclusion, with limitation of this study, acemannan was able to enhance the DSPP mRNA expression via at p38MAPK signaling pathway in human dental pulp cells.

Keywords: Acemannan , Dentine sialophosphoprotein, human dental pulp fibroblasts, p38 MAPK.

INTRODUCTION

Dental caries is a major problem in dental health care. This disease can invade and destroy enamel, dentin and dental pulp respectively. To protect dental pulp, dentin forming cells or odontoblasts will

synthesize dentine extracellular matrix and induce mineralization to form reparative dentin (Ruch, 1985). In severe dental pulp tissue injury, odontoblast cells can necrosis and replacement with a new generation of odontoblast-like cells which are differentiated by dental pulp fibroblast, to regulate maintain the dentin-pulp complex (Smith, 2002).

Dentin sialophosphoprotein (DSPP) is a major non-collagenous dentin matrix protein and has been considered as dentin specific protein (Prasad, et al., 2010). DSPP is expressed and secreted by odontoblasts, the cells that make tooth dentin and that also maintain cell processes extending into the mineralized tissue. DSPP is cleaved into dentin sialoprotein (DSP) and dentin phosphoprotein (DPP) which are considerably dentin – specific marker of odontoblast (Hu, et al., 1998; Prasad, et al., 2010; Yamakoshi, 2008, 2009). DSPP is necessary for the dentin formation and important to control the biomineralization (Yamakoshi, 2008). However, the DSPP expression is necessary to use the signal for cell survival. Mitogen-activated protein kinase (MAPK) pathway is a signal transduction pathway which controls cell proliferation, differentiation, survival and cellular activities. MAPKs, particularly p38MAPK, have been found to play important roles in signaling induced by growth factor (transforming growth factor- β : TGF- β and bone morphogenic protein : BMPs) and stress response for initiated mineralization. In previous study found, p38MAPK is an important role to controlled BMP-2 and TGF- β induce DSPP expression and its activate odontoblast cells to form reparative dentin (Qin, et al., 2012; Simon, et al., 2010; Wang, et al., 2006). DSPP mutations cause dentinogenesis imperfecta types I,II and dentin dysplasia type II (Rajpar, et al., 2002; Thyagarajan, et al., 2001; Xiao, et al., 2001).

In present, biomaterials have been developed for dentine regeneration such as calcium hydroxide, acemannan, bone morphogenic protein and transforming growth factor- β (Iohara, et al., 2004; Melin, et al., 2000; Schroder & Granath, 1971; Sloan, et al., 2000). Acemannan is a complex polysaccharide found in inner part of *aloe vera* leaf which have important in several effect such as stimulating cell proliferation, collagen synthesis. (Wongwerawinit, 2004) In previous report, acemannan could stimulate dentine sialophosphoprotein (DSPP), dentine matrix protein-1 (DMP-1) mRNA expression, gingival fibroblast proliferation, keratinocyte growth factor-1 (KGF-1), vascular endothelial growth factor (VEGF), type 1 collagen and bone morphologic-2 (BMP-2) (Jettanacheawchankit, et al., 2009; Jittapiromsak, et al., 2007; Lardungdee, et al., 2008). In animal study, acemannan significantly reduced inflammation and enhanced dentin formation (Jittapiromsak, et al., 2010).

Although the previous study, acemannan was stimulated DSPP and reparative dentin formation. DSPP were significantly upregulated by BMP-2 for odontoblast differentiation via p38 MAPK pathway (Qin, et al., 2012). The underlying of mechanism of acemannan regulated DSPP gene expression has not been elucidated. The aim of the present study was to investigate the effect of acemannan on DSPP mRNA expression in human dental pulp cells (HPCs) via p38 MAPK pathway. The knowledge obtained for this study will elucidate the mechanism of acemannan on underlying pathway regulated DSPP gene expression.

MAIN FOCUS OF THE MANUSCRIPT

Material & method

Isolation and characterization of acemannan

Acemannan was isolated from *Aloe vera* Linn. (*Aloe barbadensis* Miller) leaf gel. The full size, fresh mature leaves of Aloe vera was collected. After peeling off the rind, the remaining clear gel was

soaked in running tap-water for 30 minutes to 1 hour, and then in distilled water for another 30 minutes to remove the remaining yellow exudates. The colorless parenchyma gel was blended with homogenizer in the ice-cold condition and centrifuged at 10,000 x g for 30 minutes at 4 °c. The supernatant was collected and the polysaccharide was precipitated with absolute alcohol. The white opaque particles were collected after centrifugation at 10,000 x g for 30 minutes at 4 °c. After lyophilization, these pellets were ground and further characterized by molecular weight size exclusion HPLC, gas chromatography and ¹³C NMR spectroscopy. The data confirmed that polysaccharide obtained from *Aloe vera* gel was acemannan (Jittapiromsak, et al., 2007).

Culture of human dental pulp cells

This research was conducted after the approval of the Ethics Committee, Faculty of Dentistry, Chulalongkorn University, Thailand. Human dental pulp tissues were prepared from surgical removal of impactions. All teeth used for the study were freshly extracted caries-free and no periodontal disease in permanent third molars. The informed consent of all the human subjects who participated in the experimental investigation described as above. The teeth were splitted. The dental pulp tissue was removed aseptically and rinsed several times with phosphate-buffer saline solution. Then, the pulp tissue was minced into small pieces of 1x1x1 mm³ and placed in a 35 mm culture dish. Pulp tissues were cultured in Dulbecco's modified Eagle's media (DMEM), supplement with 10% fetal bovine serum, 100 units/ml penicillin G, 100µg/ml streptomycin, 2mM L-glutamine, 20 µg/ml amphotericin B and incubated at 37 °c humidified atmosphere of 95% air and 5% CO₂. Media and all supplements were obtained from GIBCO BRL (USA). The culture medium was changed every 2 days until subconfluency was reached. Subcultured with 0.25% trypsin solution was performed at ratio 1:3. All experiments were performed using cells from the third to the sixth passage (Jittapiromsak, et al., 2007; Lardungdee, et al., 2008).

Total RNA preparation and reverse transcription – polymerase chain reaction (RT-PCR)

To investigate the effect of acemannan on DSPP mRNA expression, cells were seeded in 10 cm² diameter plate at density 2×10⁶ cell per well in DMEM for 24 hours, the culture medium was changed to serum free DMEM for 16 hours, then treated with the designated concentrations of acemannan (0, 0.5, 1, 2, 4 and 8 mg/ml) in serum free medium for 24 hours. Total cellular RNA was extracted using TRIzol reagent following the manufacturer's instructions then proceed to RT-PCR analysis. Briefly, total RNA (2 µg) was converted to single stranded cDNA using Prime Taq premix (2x) (GENET BIO, Korea). The target cDNA was amplified using the sense and antisense primers for DSPP and GAPDH (internal control) (Table 1). The amplification cycles were 94 °C for 1 minute, 57.5 °C for GAPDH and 56 °C for DSPP for 1 minute and 72 °C for 1 minute. After 35 cycles, the PCR products were separated by electrophoresis on 1.5 % agarose, stained with ethidium bromide, photographed, and analyzed with an Imaging Densitometer/Gel Doc Program Molecular Analysis (BioRAD, USA). The mRNA levels of DSPP were expressed as a relative ratio of the intensity of each band to the intensity of GAPDH band. The sequences of primers are listed in Table 1.

Table 1. *Sequence of PCR primers used in this study*

	Sequence (5'→3')	Size (bp)
DSPP	CATTTGGGCAGTAGCATGGGCA TGTGTCCCCATTCCAGCCCTCAAT	316 bp
GAPDH	ATCACCATCTTCCAGGAG ATCGACTGTGGTCATGAG	318 bp

Western blot analysis of signal transduction pathways in human dental pulp cells upon acemannan stimulation

To investigate the effect of acemannan induce in p38 MAPK signal transduction, cells were seeded in 10 cm² culture dish, at a density of 2×10^6 cells per cm² diameter plate, and grown to subconfluence for 24 hours. After deprivation of serum for 16 hours, the cells were treated with 10 μ M p38MAPPK inhibitor (SB203580) were preincubated with human dental pulp cells for 1 hour prior to adding acemannan. To examine the effect on DSPP mRNA expression and protein secretion, cells were treated with 0, 0.5, 1, 2, 4 and 8 mg/ml of acemannan for 24 hours in serum-free medium. The effective dose was selected and used for the rest of the experiments.

Cells were rinsed with ice-cold phosphate-buffered saline (PBS), and total cell protein extracts were prepared on ice using modified radioimmunoprecipitation (RIPA) buffer containing phosphatase inhibitors (1 mM sodium vanadate, 50 mM NaF). Protein concentrations were measured using a BCA protein assay kit (Pierce, Rockford, IL, USA). Equal amounts of 50 μ g of protein from each sample were boiled and subjected to electrophoresis, under reducing conditions, on a 12% polyacrylamide gel. The proteins were transferred to nitrocellulose (Pierce), using a trans-blot cell (Gibco BRL), at 0.4 A for 90 min. The nitrocellulose was incubated in 5% non-fat milk (Difco, Sparks, MD, USA) for 1 h and then stained with primary antibody were used phospho-p38 MAPK (rabbit anti-human antibody, 1:500), total p38 MAPK (rabbit anti-human antibody, 1:500) (Cell signaling Technology, Cell signaling, MA, USA) overnight at 4⁰c. After washing with TBST, secondary antibody (goat anti-rabbit antibody, 1:40,000) was add to the membranes for 1 hour at room temperature. Finally, the nitrocellulose was coated with chemiluminescent reagent (Pierce) and the signal captured with CL-XPosture (Pierce). Syngene image-analysis software was used to analyze the density of bands.

Statistical analysis

Statistical analysis was performed using GraphPad software. Experimental analyses were perform in triplicate. Mean and SE were used for descriptive statistics. One-way ANOVA and Bonferroni' s Multiple Comparison Test were implemented between each control groups. Significance was chosen at α level of 0.05.

RESULTS

Effect of acemannan on the gene expression of DSPP in human dental pulp cell

By RT-PCR, acemannan at the concentration 4 mg/ml was significantly in activated of dentine sialophosphoprotein gene expression in human dental pulp cells up to 1.7 ± 0.27 fold as comparison with the control group ($p < 0.05$) (Figure1 and 2).

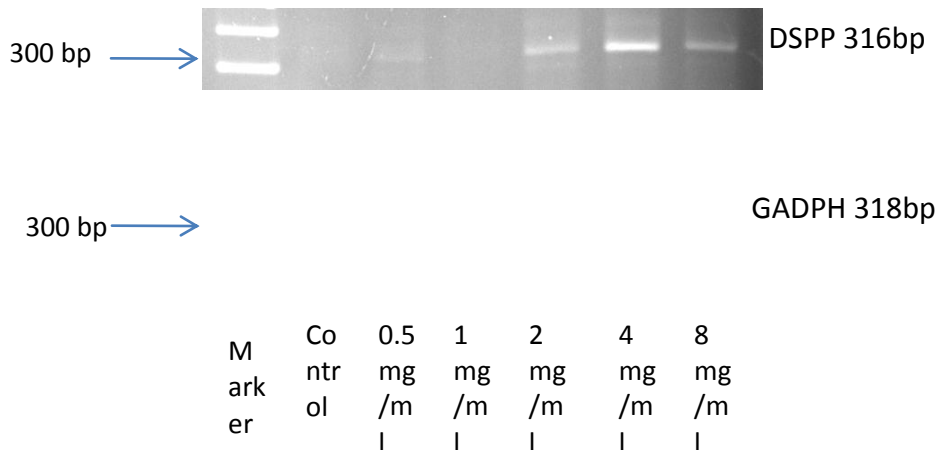


Figure 1. Expression of DSPP stimulated in acemannan in human dental pulp cell by RT-PCR Lane 1-6 represents control groups, acemannan treated groups at concentration of 0.5, 1, 2, 4 and 8 mg/ml respectively.

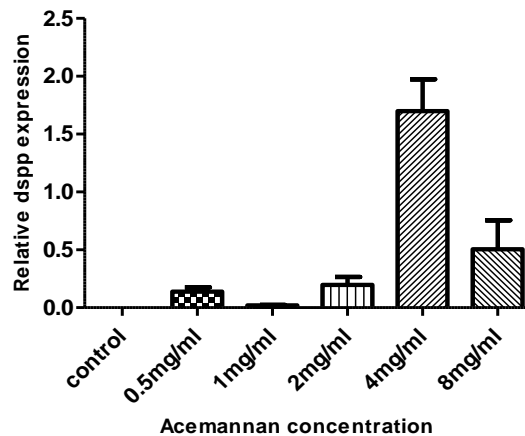


Figure 2. Relative of DSPP mRNA expression of treated group compared with the control groups. Data were show in mean \pm SD, n=3.

* Demonstrated significant different from the control groups at $p < 0.05$

Effect of acemannan stimulate the expression of DSPP via p38 MAPK pathway

In this study, acemannan 4mg/ml significantly induced maximum phosphorylation at 15 min (Fig3). We found that acemannan induced phosphorylation of p38 MAPK 3.11 ± 0.09 fold as compared with control group. p38 MAPK was suppressed by SB203580. Cells pretreated with $10 \mu\text{M}$ SB203580 for 1 hour, showed reduction of phosphorylation fifty one percentage after treated with 4 mg/ml concentration of acemannan, compared with acemannan treated group (Figure 4). Cells pretreatment with $10 \mu\text{M}$ SB203580 for 1 hour enhanced the inhibit effect of protein expression was detectably reduced in p38 protein expression.

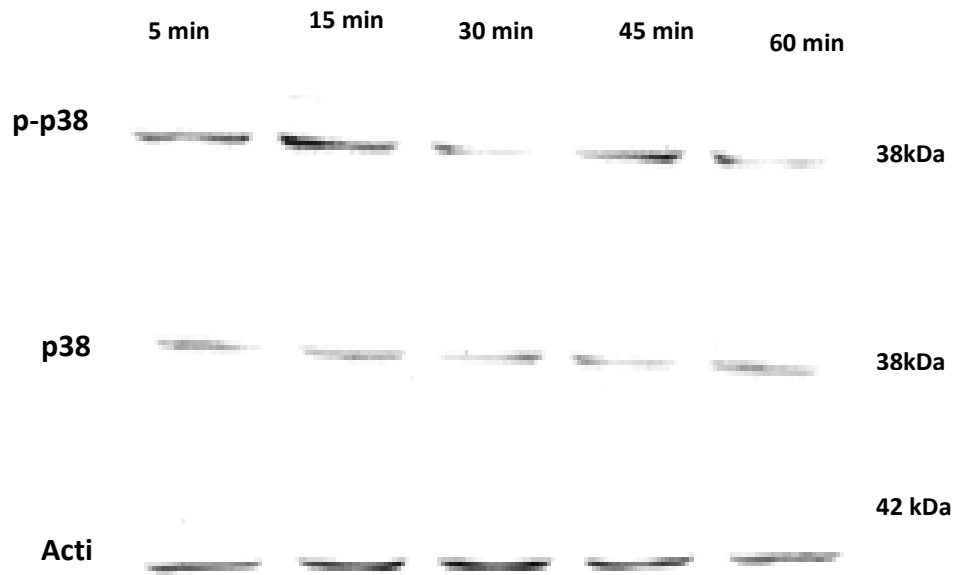


Figure 3. The effect of acemannan for the indicated time of phosphorylation p38MAPK (Lane 1-5 represent time of phosphorylation 5, 15, 30, 45 and 60 minutes). Data were show in mean \pm SD, n=3.

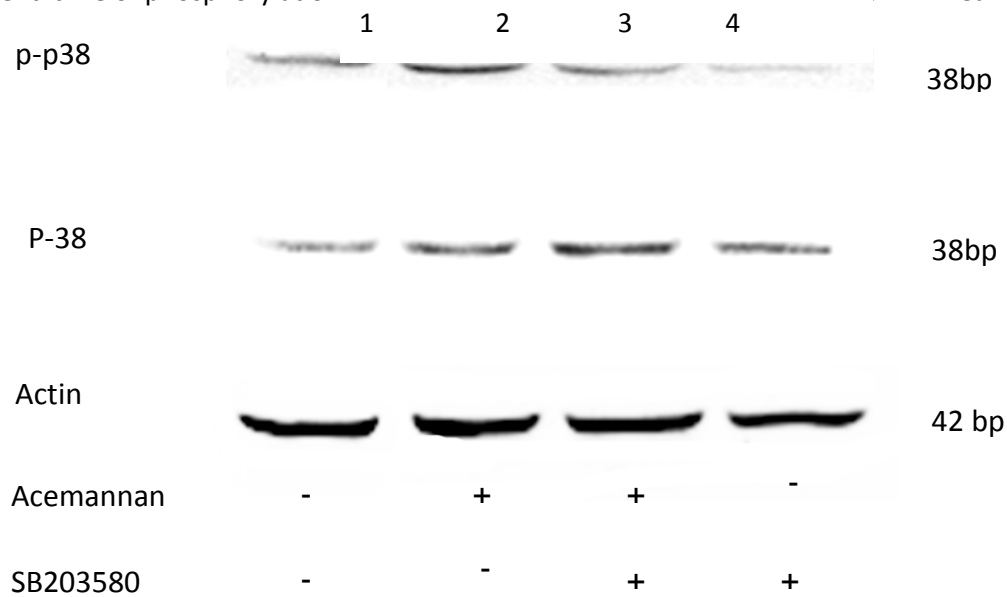


Figure 4. Cell were pretreated for 1 hour 10 μ M SB 203580 (p-38 specific inhibitor) and posttreated with 4 mg/ml acemannan. Phosphorylation was determined by Western blot (Lane 1-4 represent control, acemannan, SB203580 add acemennnen and SB203580) Data were show in mean \pm SD, n=3.

DISCUSSION

Aloe vera is a herbal medicine which are widely used in the ALTERNATIVE MEDICINE. The scientific evidences show of the effectiveness and safety of *aloe vera* extracts ("final report on the safety assessment of aloehandongensis extract, aloe andongensis leaf juice,aloe arborescens leaf extract, aloe arborescens leaf juice, aloe arborescens leaf protoplasts, aloe barbadensis flower extract, aloe

barbadensis leaf, aloe barbadensis leaf extract, aloe barbadensis leaf juice, aloe barbadensis leaf polysaccharides, aloe barbadensis leaf water, aloe ferox leaf extract, aloe ferox leaf juice, and aloe ferox leaf juice extract," 2007). In previous study found the properties of *aloe vera* to promote wound healing, cell proliferation and collagen synthesis (Wongwerawinit, 2004).

Acemannan is a carbohydrate fraction of *aloe vera* gel which was found to stimulate cell proliferation, differentiation and mineralization *in vivo* and *in vitro*. In dental treatment, acemannan can prevent alveolar osteitis (Poor, et al., 2002), stimulate bone morphogenetic protein-2(bmp-2), alkaline phosphatase activity, dentin sialoprotein expression, promote dentin formation, stimulate primary human dental pulp cell proliferation, differentiation and mineralization (Jittapiromsak, et al., 2010). In animal study found carbopol®+ 0.5% acemannan-treated wound showed significantly smaller wound size at hard palate in sprague dawley rats (Jettanacheawchankit, et al., 2009). This study, acemannan at the concentration 4 mg/ml, could significantly activate dspp gene expression in human dental pulp cells. This finding is consistent with previous report that acemannan concentration at 4 mg/ml could stimulate kgf-1, vegf, type i collagen, gingival fibroblast, dsp, bmp-2 expression and enhanced alase activity (Jettanacheawchankit, et al., 2009; Jittapiromsak, et al., 2010). But in other study found conversely that acemannan at concentration 0.5 mg/ml significant increased the gene expression of dspp and dmp-1 (Lardungdee, et al., 2008) from above the evidences, we can conclude that acemannan significantly activate dspp mrna expression in human dental pulp cells.

Human dental pulp cells can differentiate to odontoblast cells, which secrete extracellular matrix form dentine mineralization during dentin formation. Recent study, human dental pulp cell, were treated with acemannan exhibited increase cell proliferation, dspp gene expression (Lardungdee, et al., 2008) which is important in specific dentine marker for dentin formation. In severe injury, odontoblast cell can be necrosis and odontoblast like cell in response to form reparative dentin formation. Odontoblast differentiation is regulated by growth factors such as tgfb- β and bmp-2 to upregulated dspp mrna. Dspp has been characterized as a dentine marker of odontoblast differentiation that important for dentin formation. In this study, acemannan significantly induced odontoblast differentiation (dentine specific marker : dspp) for dentine formation in human dental pulp cells, which corresponded to the previous study of dspp regulated mineralization of dentine in human dental pulp cell and potential odontogenic differentiation (Lardungdee, et al., 2008; Wei, et al., 2007).

Mapk signal transduction pathway is an important in regulation of cell differentiation, proliferation and stress response in multicellular organ. Mapks are a member family of serine-threonine kinases and include three characterised: extracellular signal regulated kinase (erks), c-jun n-terminal kinases (junks) and p-38 mapk (Rubinfeld & Seger, 2005; Zhang & Liu, 2002). P38mapk is a member of the mitogen-activated protein kinase (mapks)family and involved stress response for initiated of mineralization(Cobb, 1999). Previous study has demonstrated that p38mapk pathway might act downstream of odontoblast differentiation(simon, et al., 2010). The purpose of this study is to investigate the molecular mechanism of acemannan regulation in dspp gene expression via p38mapk pathway which has never been studied in any other research. We found acemannan stimulated odontoblast differentiation and involved p-38mapk. Sb203580 is a specific inhibitor in p38 mapk (Young, et al., 1997) and its effect inhibitory concentration of sb 203580 could be detected at 10 μ m (Ma, et al., 1999; Zhao, et al., 2012). Cells pretreatment with 10 μ m sb203580 enhanced the inhibit effect of protein expression was detectably reduced in p38 protein expression after addition 4mg/ml concentration of acemannan. The data indicate, acemannan stimulate odontoblast differentiation through p-38 mapk pathway which is corresponded to previous study

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found odontoblast like cell line, $\text{tgfb}\beta$ -1 and bmp -2 are stimulated dentinogenesis via p38 phosphorylation (Simon, et al., 2010; Wang, et al., 2006).

CONCLUSION

Further study is being performed to examine the effects of DSPP expression in ERKs and JNKs phosphorylation. Our findings the acemannan stimulated odontoblast differentiation on human dental pulp cells via p38MAPK pathway. The molecular mechanism in p38MAPK pathway may involve inducing reparative dentine formation.

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To Swear or Not to Swear: The Challenge of Hip-hop in the Language Classroom

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ABSTRACT

This paper addresses one of the key challenges facing hip-hop pedagogies: the censoring of swearing. Drawing on three key publications in the field of hip-hop literacy (Morrell & Duncan-Andrade 2002, Fisher 2005, Hill 2009), this paper argues that current practice is often highly selective, either discouraging or simply avoiding swearing altogether. In presenting an idealized version of rap, it is argued that current practice fails to expose students to the 'reality' of rap – a typically aggressive, didactic, resistant voice. In response, this paper offers three potential solutions to the issue of swearing in the hip-hop language classroom: (1) permit swearing, without exception; (2) modify the form, and restrict the types of swearing; (3) do not permit swearing, and instead, engage students in language systems such as naming and negation, both of which have a similarly 'resistant' function to swearing. The potential advantages and disadvantages of all three solutions are discussed, with preference given to the third solution. And while this paper acknowledges that language systems such as naming and negation can never completely substitute for the explicit teaching of swearing, the point is that students are taught to recognize the interpersonal function of resistant language practices, and in turn, recognize that what is taboo in the classroom, is nonetheless integral to a resistant, marginalized voice.

Keywords: Hip-hop literacy, rap music, swearing, resistant voice, naming, negation.

INTRODUCTION

Since its emergence in the late-1970s, rap music, and the hip-hop culture from which it derives, has been the subject of considerable interdisciplinary research (see *The Hip-hop University Working Bibliography* for a list of over 3 000 publications). One example is the development of hip-hop literacy. In response to low literacy levels in the United States, hip-hop literacy seeks to engage socially marginalized students in language studies through the analysis and construction of rap lyrics: "We ultimately decided that we could utilize Hip-hop music and culture to forge a common and critical discourse that was centered upon the lives of the students, yet transcended the racial divide and allowed us to tap into students' lives in ways that promoted academic literacy and critical consciousness" (Morrell & Duncan-Andrade 2002, p. 88).

Swearing is a defining feature of rap music. And while not all rap music includes swearing, it can be argued that swearing is a feature of the types of rap music consumed by those students engaging in hip-hop literacy programs, i.e. marginalized, urban, working-class adolescents, as well as middle-class adolescents who seek to align with the working-class (Krims, 2000). Given then the emergence of hip-hop literacies, both in the United States and globally (Pennycook, 2007), the issue of swearing in the language classroom is one worth examining. In particular, to what extent, if at all, should teachers engage students in the kinds of swearing that proliferate the majority of the rap music canon?

In order to address this question, this paper examines three influential hip-hop literacy publications from the past decade: Morrell and Duncan-Andrade (2002), Fisher (2005) and Hill (2009). The paper then offers three potential solutions to the issue of swearing in the hip-hop language classroom: (1) permit swearing, without exception; (2) modify the form, and restrict the types of swearing; (3) do not permit swearing, and instead, engage students in language systems such as naming and negation, which have a similarly 'resistant' interpersonal function. The potential advantages and disadvantages of all three solutions are discussed, with preference given to the third solution. And while the paper discourages the explicit teaching of swearing, its ultimate aim is to encourage teachers and students to better engage in resistant language practices, and to view swearing as a legitimate linguistic response of any marginalized community.

BACKGROUND

This paper follows Allan and Burrige (2006) who define swearing as: "an emotive reaction to anger, frustration, or something unexpected and usually, but not necessarily, undesirable" (Allan & Burrige 2006: 78). According to Allan and Burrige (2006), the category of swearing includes religion-based profanity and blasphemy, such as Jesus Christ, Christ, god almighty, as well as a range of obscenities from the 'pool of dirty words'. The latter derive from tabooed bodily organs (e.g. asshole), bodily effluvia (e.g. shit), and sexual behaviours (e.g. fuck). Allan and Burrige also distinguish swearing, such as fuck and dick, from insults, such as fucker and dickhead.

For the purposes of this paper, swearing is also understood as an example of what Halliday (1976) terms 'anti-language'. In this way, swearing is not only an emotive reaction to something undesirable, but it is a marker of group membership; 'groupness' is determined by whether one accepts or rejects their interlocutors swearing. In other words, it is built on a mutual understanding of what is, or is not considered taboo. For example, for some people, religious-based profanity is far more inappropriate than swearing from the 'pool of dirty words'. For others, swearing is completely taboo, regardless of the topic. The point is, through swearing, speakers are able to set up a divide between 'in-groupers' and 'out-groupers'; those who accept the swearing, and those who do not.

A further point to note is that although swearing typically involves taboo topics, taboo lexis does not necessarily function as swearing. And this is especially the case in rap lyrics. For example, the following clauses from hip-hop vernacular English express the taboo topic of sexual intercourse: *hit it, rode it, go up in it*. However, these are not instances of swearing; they simply express a taboo topic. While this paper will focus exclusively on the linguistic category of swearing, it is acknowledged that much of what is discussed here is also applicable to taboo lexis.

Finally, the three publications to be reviewed have been chosen because they are considered to be highly influential in the field. And as such, it is expected that these scholars have had, and continue

to have, influence on teaching practitioners. Having said this, they should not be considered *completely* representative of hip-hop literacy. It is expected that some language classrooms engage in swearing in different ways to that which is outlined in these publications. In any case, this author welcomes feedback from language teachers in terms of how they engage with swearing in the hip-hop language classroom.

SWEARING IN THE HIP-HOP LANGUAGE CLASSROOM

A Critical Review

All three publications make minimal reference to swearing. Fisher's journal-length article mentions "profanities" once, while Morrell and Duncan-Andrade's journal-length article does not mention swearing, at least not explicitly. Hill's (2009) book-length publication also rarely mentions swearing, again, preferring the synonym "profanity". There are several possible explanations for this lack of reference to swearing.

As discussed below (Solution 1), it could be argued that because swearing is generally prohibited in language classrooms, these scholars do not consider it applicable to their discussion of hip-hop literacy. If this was the case though, one would expect a brief acknowledgement of that fact. Conversely, it could be argued that swearing in the hip-hop classroom is accepted by these authors, and as such, the topic is rarely introduced. However, as discussed below, the instances in which the topic of swearing *is* addressed suggests this is not the author's position. Finally, it could be argued that like any research, these publications have their delimitations, and that the topic of swearing is simply beyond the scope of each publication. Countering this position is the fact that all three publications exclude swearing when outlining the salient language features of rap music. Hill (2009) for example makes multiple references to linguistic concepts such as call-response, narrativizing, signifying and slang, but rarely swearing. And similarly, Morrell and Duncan-Andrade (2002), in arguing for raps' status as a literary text, outline numerous language features of rap, which again, do not include swearing:

Hip-hop texts are rich in imagery interpretations and can be used to teach irony, tone, dictation, and point of view. Also, hip-hop texts can be analyzed for theme, motif, plot, and character development. (Morrell & Duncan-Andrade, 2002, p. 89)

So why then is minimal reference made to swearing? In order to better answer this question, it is worth examining what *is* said in those rare instances where swearing is mentioned. The following is a short extract from Fisher (2005); the only instance in which she engages with the topic of swearing:

At this stage in Dee's development as a writer, Joe was less concerned with issues of grammar and profanity in her work because he wanted to call attention to the fact that she was finally beginning to "sing". With that foundation, he began to build a relationship based on respect and honor with Dee and the other students present. (Fisher, 2005, p. 123)

On the one hand, both scholar and teacher accept swearing in the hip-hop language classroom. At the very least, the student was not reprimanded for her use of the word shit. In fact, the implication is that because English teacher Joe accommodated Dee's grammar and profanity, he was able to gain the students' respect. Countering this reading however is the wording: "At this stage..." and "less concerned...". The overriding implication here is that swearing is in fact something to be 'concerned' about; something that will eventually be dealt with as Dee develops as a writer. In other words, swearing is the practice of a novice, hip-hop writer.

Hill (2009) references swearing early in his book, as he outlines the 'rules' of his hip-hop classroom:

Profanity was permitted in class provided it was neither excessive nor abusive. Students were strictly prohibited from using what Mr. Colombo and I termed to be "hateful words" such as "nigger", "faggot," or "bitch" except when reading or commenting on a text. Despite the arbitrariness and potential for exploitation of the rules, students consistently honored their commitment to following what we established. This is a critical point, both for gaining a richer understanding of the context and to fully appreciate the reasons for the highly provocative, informal, and potentially offensive language that often appears in the data that I provide in this book. (Hill 2009, p. 24)

In contrast to Fisher (2005) and the teachers she observes, Hill (2009) explicitly addresses the issue of swearing in the hip-hop classroom. For Hill, swearing is a feature of rap lyrics and the hip-hop classroom; it is something that needs to be acknowledged and managed. Moreover, Hill permits swearing in his hip-hop classroom. However, there is one important qualification to Hill's position on swearing: Hill, and his collaborating teacher Mr. Colombo, *do* prohibit the use of certain swear words, such as *nigger*, *faggot* and *bitch*, although it was permissible to read and comment on texts which had this type of swearing. It is worth noting that the type of swearing prohibited by Hill and Mr. Colombo were the insult type (Allan & Burridge, 2006).

In general, one can argue then that Hill's (2009) position is progressive in terms of the use of swearing in the classroom. On the other hand, Hill's decision to censor certain taboo insults is, in his own words, an 'arbitrary' one: what is offensive to one person may be acceptable to another (see Solution 2 below). The concern of this paper however is not so much that his selection may be arbitrary, but the fact that he is censoring in the first place. Hill explicitly states that a key function of rap lyrics is to be "highly provocative, informal and potentially offensive" (Hill 2009, p. 24). And yet he censors certain types of swearing, presumably on the grounds that they are *more* 'offensive' than other types of swearing.

Morrell and Duncan-Andrade (2002) make no explicit reference to swearing in their article. Nevertheless, their article is revealing in terms of the types of rap music they engage with. While their list of rap songs is a fair representation of the rap canon, and many of their rap texts include swearing, a subtle distinction is made between those rap texts which are useful for literary topics and interpretations, and those rap texts, namely 'gangsta rap', which are open to critique: "It is possible to perform feminist, Marxist, structuralist, psychoanalytic, or postmodernist critiques of particular Hip-hop texts, the genre as a whole, or subgenres such as "gangsta" rap" (Morrell & Duncan-Andrade 2002: 89). The sub-genre of gangsta rap is especially relevant to this discussion because it tends to contain the highest frequency of swearing of all the rap sub-genres. And while Morrell and Duncan-Andrade acknowledge that the whole rap genre is itself potentially subject to these kinds of 'critical' approaches, when read alongside the other papers in question, the specific reference to gangsta rap is not incidental.

To varying degrees, all three papers distinguish between the gangsta rap sub-genre and all other sub-genres of rap music. And as consequence, they distinguish between, and ultimately give preference to, those rap texts which have a lower frequency of swearing. For example, Fisher (2005) recounts how her teaching subject, Mama C, censored the gangsta or 'bling-bling' sub-genre of rap music:

"Mama C's goal was to set a tone for students' writing; she did not want what students characterized as "bling bling" or bragging about material items such as money, clothes and cars. "Conscious work" was an expectation in this community of writers and having a sense of history was at the core of this type of writing. (Fisher, 2005, p. 125)

Unlike Morrell and Duncan-Andrade (2002), who suggest that teachers can at least critique the gangsta rap genre, Mama C rejects the 'bling-bling' genre altogether. And although she does not explicitly reject swearing, for anyone familiar with rap music, her rejection of the 'bling-bling' genre is, in part at least, a censoring of the types of rap music, and the types of rap artists, that frequently employ swearing.

The underlying motivation for excluding the gangsta rap genre is made explicit by Hill (2009). In short, Hill encourages a separation of rap music in terms of 'high' and 'low' culture; a distinction between what he terms 'authentic' and 'inauthentic' rap music texts:

One of the primary ways that the Heads registered the authenticity of course texts was by drawing distinctions between "rap" and "hip-hop." Rather than merely echoing the many hip-hop scholars and critics who classify rap music as a distinctive "element" subsumed under the broader rubric of hip-hop culture (e.g., Pough, 2004; Rivera, 2003), the Heads articulated a more nuanced and refined framework that excluded texts that they deemed inauthentic. For them, the term "hip-hop" served as shorthand for "real" hip-hop texts, while "rap" was used, often pejoratively, for all texts that lay outside of their conceptions of authenticity. Like traditional modernist dichotomies between high and low cultures (e.g., Adorno & Horkheimer, 1944; Arnold, 1932), the Heads' hip-hop/rap distinction was not merely informed by an analysis of particular texts, but by a belief about the capacity of particular sites of cultural production to yield authentic material. For the Heads, commercial rap artists like Lil' Jon and 50 Cent were not only inauthentic rappers, but representatives of an artistic field that was incapable of producing authentic material. (Hill, 2009, p. 33)

Of course classifying *any* text in terms of an authentic/inauthentic dichotomy is particularly problematic. In this case, what constitutes 'authentic' for an English department Head for example, is going to be vastly different to that of his or her students. And in Hill's (2009) defense, he *does* problematize this distinction (although he offers no solution), noting its potentially adverse effect for hip-hop literacy:

My choices were reflective of a broader tendency within many HHBE contexts documented in the research literature. Typically, HHBE educators choose texts that they deem politically, intellectually, or culturally sophisticated and relevant. While appropriate, such moves often lead to the development of curricula that respond to interests, experiences, and generational orientation of the teacher rather than the student. In doing so, HHBE contexts not only risk becoming less "culturally relevant," they can also replicate the very structures of elitism that HHBE contexts aim to problematize and ultimately dismantle. (Hill, 2009, p. 38)

The above quote is especially significant in the context of this paper. Regardless of their specific reasons and rationale, all three authors ultimately present an idealized, moralized version of rap music to their students. In terms of the hip-hop literacy classroom, this means, amongst other things, the censoring of swearing. And as suggested by Hill (2009), this has larger implications: it can mean compromising and ultimately undermining the objectives of hip-hop literacy. How can language teachers expect to engage students in 'their' (i.e. the students) genre, when they provide them with a censored, moralized version of that genre?

Solving Swearing

The following section considers three potential solutions for teachers who seek to engage with swearing in the hip-hop language classroom.

Solution 1: No Censoring

The most straightforward solution to this issue is to allow swearing, of any type, in the hip-hop language classroom. In other words, teachers not only acknowledge the presence of swearing in rap music, but as part of a 'genuine' hip-hop pedagogy, they encourage students to consume and produce swearing, irrespective of how taboo it might seem. Of course, this is an *especially* controversial solution. Educational institutions are notoriously conservative when it comes to swearing (Ravitch 2003). One potential solution then is to make an exception for the hip-hop language classroom. In that case, swearing would be deemed acceptable *only* within the confines of the hip-hop language classroom. While this approach might work in *some* educational contexts, this solution would be extremely difficult to implement in more socially 'conservative' cultural contexts. While it is beyond the scope of this paper to review the various language policies on swearing, in any case, it is fair to say that a 'no censoring' solution would be difficult to implement in the vast majority of language classrooms.

Solution 2: Modify Swearing

The second approach is an intermediate solution: swearing is permitted in the language classroom, albeit with various types of censoring. At the start of a hip-hop program, teachers and students identify the particular words which need to be either modified or omitted altogether from the program. In the case of modification, both teachers and students can simply replace swear words with abbreviations and deletions. This practice is illustrated in the following extract, as one of Hill's (2009) students modifies the form of the word *fuck* to the letter 'F':

I like 50 Cent because he look good and he could rap and everything. But I really like him cause he be like "F the haters, the police, everybody." Just like 'Pac. (Hill, 2009, p. 47)

Another type of censoring is the complete omission of specific types of swears. This approach follows Hill (2009) and his censoring of insults, such as *nigger*, *faggot* and *bitch*. As noted earlier in the essay, a key criticism of this approach is that the decision to omit particular swears over other swears is invariably arbitrary. And even if teachers and students can formulate a rationale for their censoring (e.g. omit all religious-based profanities and sexual behaviours, but accept tabooed bodily organs and bodily effluvia) the overriding concern is that teachers and students are still engaging in a diluted version of rap music. As such, they fail to fully appreciate, and reproduce, the 'real' rhetorical force of rap music: a resistant voice that is meant to shock; that is meant to be aggressive; that is meant to be taboo. And in turn, it has the potential to set up a divide between high-culture and low-culture; to install precisely the same social stratification which hip-hop pedagogy is meant to transcend.

Solution 3: Analogous Language Systems: naming and negation

The third and final solution involves completely censoring swearing from the hip-hop literacy program. This means censoring the canon of rap texts for swearing, as well as prohibiting students from producing swears. The main benefit of this approach is that hip-hop literacy programs, regardless of cultural context, cannot be rejected on the basis of 'inappropriate' language. Of course, as noted in Solution 2, and throughout the essay thus far, the *major* disadvantage of this approach is that it inevitably produces an idealized, moralized version of rap music; an outcome which conflicts with the objectives of hip-hop pedagogy.

Solution 3 therefore aims to engage students in swearing, without explicitly using swears. Or more specifically, it aims to teach students about resistant language practices more generally, and to then contextualize and legitimize swearing as an integral part of a marginalized culture. It is beyond the

scope of this paper to outline a detailed curriculum or a lesson plan, particularly given that this approach would depend largely on the age of the students. For example, the level of technicality and metalanguage would be reduced for a junior-level classroom compared with a senior, secondary-level classroom. However, the important point to make is that any such classroom discussion regarding the rhetorical function of swearing, resistant language, anti-cultures and the like, *must* be grounded in the rap music text. Of course, having said this, the fundamental problem still remains: in Solution 3, all swearing is omitted from the hip-hop literacy classroom. Therefore, as a substitute for swearing, it is proposed that teachers and students engage in alternative language systems that have a similar, 'resistant' function to swearing. This paper recommends two such systems: NAMING (e.g. Poynton, 1984) and NEGATION (e.g. Martin & White, 2005).

The English system of NAMING comprises any proper noun that denotes a *particular* individual person, place, event or thing. And in English, proper names are typically signified with a capital letter. The following are examples of proper names: "'John', 'Henry', 'Helsinki', 'Hurford', 'Fido', 'Rover', 'Dobbin', 'Fluffins', 'New York', 'San Francisco', 'Robert Louis Stevenson', 'Alec Guinness', '1066' (the date), 'Watergate', 'Waterloo', 'Mars', 'Alpha Centauri', 'Chitty Chitty Bang Bang', 'Hamlet', 'Romeo and Juliet' (the play), 'Fidelio', 'R2D2' (a robot)" (Hurford 2003, p. 206). The system of NAMING provides students with an ideal introduction to resistant language practices. To begin, as illustrated above, the system itself is extremely straightforward. For the most part, students are familiar with 'names' by the early years of junior-level school, and can readily identify and produce names. NAMING is also a salient feature of the entire rap music genre; it is easy to access rap texts that comprise names, and at the same time, are censored for swearing. From a sociolinguistic perspective, the system of NAMING is much like swearing; it construes solidarity. It creates 'in-groupers'; those who can retrieve the name, and those who cannot. In essence, naming gives us insight into 'who' is taking part in the interaction. For example, in the clause, Kanye West is a rapper, only those readers familiar with Kanye West can fully engage with the text. As a consequence, the speaker sets up a greater level of intimacy between themselves and those who can identify the person. At the same time, they distance themselves from those who cannot retrieve the name.

The English system of negation is typically expressed by the presence of the negative particle (not or the contraction n't). In lexis, it can be expressed by several means, including prefixes such as un or non, as well negative adverbials such as never, nowhere and no way (see Crystal 2009 for a basic definition of negation). In many ways, the system of negation is similar to the system of naming. For a start, negation is also a linguistic system which is accessible to even the most junior-level students. At the very least, the negative particle not is easy to identify and reproduce. Moreover, like naming, it is a salient feature of all rap music; when selecting authentic rap texts, teachers and students will have no problem acquiring examples of negation. In terms of its rhetorical function, negation is perhaps the ultimate linguistic tool of resistance. From a Bahktinian, dialogic perspective (e.g. Martin and White 2005), negation can be understood as the most contracted of all linguistic resources: it acts to directly reject any alternative propositions, real or imagined. For example, the proposition, Kanye West is not a real rapper explicitly engages with, but ultimately rejects the alternative, positive proposition – that Kanye West is a real rapper. In the case of rap music specifically, Caldwell (2007) found that the main rhetorical function of negation is to reject, and ultimately challenge, the 'voice' of the dominant mainstream powers, such as the government, police, parents and teachers.

The above overview of naming and negation is not intended to be a detailed, theoretical discussion of their respective rhetorical properties. Nor is it intended to provide an outline of the specific kind

of curriculum, tasks, or metalanguage that should be used when introducing these systems into the hip-hop literacy classroom. The point is simply to show that these systems function in a similar way to swearing. And yet, unlike swearing, they are not considered taboo; they are not prohibited by any official language policy. The ultimate point then is that hip-hop literacy programs not only teach students to identify, analyse and produce these language systems, but to make the connection between the rhetorical function of these language features and the high frequency of swearing in the rap music they consume.

FUTURE RESEARCH DIRECTIONS OR RECOMMENDATIONS

Given the exploratory nature of this paper, this author foresees two main directions for this research: (1) examine classroom practice and policies; and (2) produce, implement and evaluate a unit of work.

The first step for this research is to examine *actual* practice in terms of swearing in the hip-hop classroom. While it is expected that such an investigation will reinforce the findings presented in this paper, it is worth explicitly questioning both teachers and students regarding the topic of swearing in relation to hip-hop literacy. This research could also include an analysis of the language policies of the respective schools and governing bodies. Moreover, given the global impact of hip-hop literacies, it could also include a cross-cultural analysis to identify any differences in practice and policy within hip-hop literacy programs.

Drawing on these findings, as well as those presented in this paper, the next important direction for this research is to produce, implement and evaluate a unit of work based on Solution 3. In other words, design a unit of hip-hop literacy that supplements swearing with a focus on alternative language systems, such as naming and negation. And, as noted above, it would be especially worthwhile to introduce this unit of work into a range of cultural contexts.

CONCLUSION

The topic of swearing in hip-hop literacy is a vexed one. After reviewing three key publications in the field, it is clear that explicit, conscious consideration needs to be given to this issue. As it stands, all three authors, to varying degrees, present the position that swearing should not be part of the hip-hop language classroom. But what is most concerning is their rationale: that swearing should be omitted because it is not a feature of high quality, 'authentic' rap music. Of course, as Hill (2009) acknowledges, this position is especially problematic, and may in turn reinforce the kinds of social stratification that hip-hop pedagogy seeks to transcend. In response, this paper presents a solution which is not only politically and culturally sensitive to the issue of swearing in the classroom, but which, at the same time, does not misrepresent rap music and hip-hop culture.

If nothing else, this paper is a reminder to those teachers working in hip-hop pedagogy that rap music is meant to be resistant. It is meant to be outrageous, aggressive, and even destructive. It is meant to resist the mainstream, dominant forces. And for many students, this includes their teachers. The challenge then for teachers working in hip-hop literacy is to transcend their own ideologies, sensibilities and prejudices; to acknowledge all resistant language practices as a legitimate linguistic response of the marginalized; in short, to celebrate the censored.

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A Study on Key Performance Indicators (KPIs) for Basic Education in Taiwan

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ABSTRACT

In recent years, students in Taiwan have performed well in international academic achievement tests such as PISA or TIMMS, and the quality of basic education in Taiwan is among the best. However, to further and better the effectiveness of basic education governance through scientific means remains an issue of concern. This research explored the construct of key performance indicators (KPI) and its application in basic education.

Keywords: Performance, basic education, indicators, Taiwan.

INTRODUCTION

Educational policies in advanced nations emphasize performance accountability, educational quality of schools and student achievement, and improvements were made in assessment policies to effectively evaluate educational performance. In the United States, educational reforms from grade K to 12 include the No Child Left Behind Act, improvements in assessment policies and accountability systems, and supporting excellent schools while shutting down poorly performing schools. In December 2007, UK government launched The Children's Plan: Building Brighter Futures report, which describes a new blueprint for basic education in Britain. The report delineated developmental goals for children's education for 2020, such as increasing attention to the physical and psychological development of children, and preparing each child to succeed in school, and according to the Early Years Foundation Stage Profile, more than 90% of 5-year old children have achieved this expectation. As can be seen, countries such as the United States and United Kingdom value the learning performance of students and improvements in overall educational quality as well as continuing to promote performance accountability and forwarding many important indicators for evaluating educational performance.

In Taiwan, a motion was proposed to administer a formal competence test for learning achievement for primary and secondary in 2007, to be used as a major teaching outcome evaluation for both teachers and students and as a timely intervention to increase the learning outcome of students. The implementation of such a competence test conveyed the message of performance accountability in the basic educational system, and is useful to the current formulation of an effective educational accountability system.

Hence according to the stated research background and motivation, the two primary goals of this study were: In Taiwan, a motion was proposed to administer a formal competence test for learning achievement for primary and secondary in 2007, to be used as a major teaching outcome evaluation for both teachers and students and as a timely intervention to increase the learning outcome of students. The implementation of such a competence test conveyed the message of performance accountability in the basic educational system, and is useful to the current formulation of an effective educational accountability system.

Hence according to the stated research background and motivation, the two primary goals of this study were:

1. Develop the content and dimensions of key performance indicators for basic education.
2. Construct appropriate key performance indicators for basic education.

LITERATURE REVIEW

Content of indicators of educational accountability

Educational performance accountability developed from western countries emphasizes fair and effective multi indicators as the first tools toward better educational efficiency and effectiveness. However, scholars differ in their definitions of indicators. Some believe that indicators are statistical measurements (Johnstone, 1981) while others assert that indicators represent signals that manifest the performance of organizations (Spee & Bormans, 1992). In addition, indicators are also viewed as guidelines for the qualitative and quantitative measurement of organizations (Cuttance, 1990). Through symbols, indicators can also represent a single or multiple input, process or outcome for comparison or evaluation. These indicators could be in the form of numbers, percentages, test scores, levels of participation or perceptions of student achievement (McEwen, 1995).

From a management perspective, indicators are tools for measuring performance. Through a complete system of indicators, a manager can evaluate the operational performance of an educational organization, and hence the term performance indicators, though educational indicators are generally combined with the term performance indicators (Scheerens, 1991).

In education, indicators are referred to as educational indicators. According to Wu (2002), educational indicators have dual meanings. First, they are concrete items predicting the outcome of educational operations; second, they are concrete items describing the important features of an educational system. Wang (1996) pointed out that educational indicators refer to the statistical assessment of performance in major levels of an educational system. Others such as Richard, McDonnell and Oaks (1991) indicated that both field practitioners and academia believe that a single indicator cannot provide information that could be useful to a complex and varied educational domain. Rather, a system of indicators must usually be constructed from a combination of statistical data to provide an accurate picture of education.

In response to the call for an educational accountability that values performance, the province of Alberta in Canada forwarded The Educational Quality in Indicators (EQI), which comprised four levels of educational models. The partnership level includes school, family and society; the condition level includes background, input and management; the student performance level includes cognition, friendship and behavior; and the time level includes 3rd, 6th, 9th and 12th grades (McEwen, 1995).

According to Suen (2000), review of domestic and overseas literature on education show five types of conceptual models for educational indicators, namely systems educational indicators, deductive educational indicators, inductive educational indicators, goal oriented educational indicators and problem-based educational indicators. Since current education emphasizes educational performance accountability, multi indicators should be used for guidelines and verification to achieve a fair and effective accountability system.

Scholars differ in their views of educational indicator constructs. Some believe that educational indicators need only be based on schools while others recommend indicators measuring school network information. According to Chen (2007), the educational performance indicators constructed by different schools can be classified into five models. Of these, the most representative basic model is based on the integrative educational system proposed by Murnane (1987) and Shavelson (1987). In the model, educational indicators are divided into input, process and output educational indicators (reference: Porter, 1991).

1. Input indicators: Include finances and other resources, teacher knowledge, student background, parental/social regulations.
2. Process indicators: Can be divided into two major types, including characteristic of the school's educational organization and characteristics of the school's teaching. The former includes school quality and school district, and state and country indicators; the latter includes course quality and teaching quality.
3. Output indicators: Includes student learning achievement, graduation performance, efficacy of school operation, teaching and research performance.

Meaning of key performance indicators

Key performance indicators, also known as primary performance indicators, critical performance indicators and performance assessment indicators, are important indicators for assessing the outcome of management. KPI are tools for datalizing management and therefore must be objective and measurable. This term is often used in assessing financial management and general administration by quantifying and qualifying the performance of companies, employees and tasks over a given period. It is useful for improving performance and planning, and is comparable to the gauges in an airplane cockpit. Flying is a complex task requiring indicators for fuel, airspeed, altitude, learning and destination. Like a pilot, managerial personnel must remain attuned to environmental and performance factors, and therefore need gauges to safely guide the company into the future. Management guru of the generation, Drucker, stated that KPI is the indispensable dashboard that guides the development of a company.

Many scholars offered different interpretations of KPI. Kerr (2000) regarded KPI as an important feature of a management control system that obtains valuable feedback for planning and evaluation purposes. KPI is also viewed as a method for policy administration by helping decide policy formulation and implementation. Wang (2004) believes that in the Planning-Implementation-Assessment of management, KPI is an inseparable component of assessment that represents the basis for evaluating key individual and organizational performance and contribution. Li (2004) pointed out that KPI is simply an indicator, not a goal; however, it can be used to determine goals or behavioral standard. KPI is a performance indicator, not an indicator of ability or attitude; it is a key performance indicator, not a general indicator; KPI is a quantified indicator that can reflect the critical success factors of an organization. Therefore KPI is selected according to the design of the

organization. However, regardless of the type of KPI chosen, it must concur with organizational goals and be quantifiable.

Wu and Lin (2008) define KPI as the analysis, summarization and selection of factors that are critical to the successful operation of organizations or departments. In addition, by breaking down organizational or departmental goals into quantifiable targets, the degree to which these goals are achieved can be reviewed and determined. Furthermore, KPI must include two important content: key indicator and performance indicator. The former is defined as important and influential; the latter is an important tool for determining the goal achievement or performance accountability of an organization or group, and should reflect the performance standard of organizations, departments or individuals in order to form guidelines, diagnosis or policies. Through his field experience, Yang (2009) defined KPI according to SMART, that is, specific, measurable, attainable, relevant and time-bounded.

In summary, KPI can be defined as an evaluation basis and target that can concretely reflect important and influential factors in the operations of an organization or department. It is measurable, attainable, relevant and time-bounded, and can adequately reflect critical success factors in organizational performance.

Preliminary Construct for Educational Key Performance Indicators

Construct for indicators primarily based on achievement of basic educational performance

The educational performance indicators used in this research were primarily based on KPI used in management, and the study was based on institutes of higher education using KPI. In other words, by integrating past studies on Taiwan's school efficacy, quality and administrative requirements toward basic education, the study approximated Taiwan's societal perspective toward basic education, and is consistent with the research goal of determining performance.

Importance of input, process and outcome indicators

Few domestic and overseas research on school efficacy focused exclusively on student learning outcome. Most studies were multi-dimensional analysis of education system organization and operation to determine performance from dimensions such as input, process and outcome. In Taiwan junior high schools and grades schools, parents and society expect students to enter the next grade up, especially in junior high school. Therefore schools must satisfy the expectations of different parties toward student performance, and the outcome of school performances frequently determines the outcome of educational accountability during educational administrative evaluation of the school. To determine educational accountability in basic education, this research underscored the importance of input, process and outcome dimensions to verify whether schools were able to implement different levels of detailed indicators, especially key indicators. Figure 1 shows the preliminary framework of the indicators.

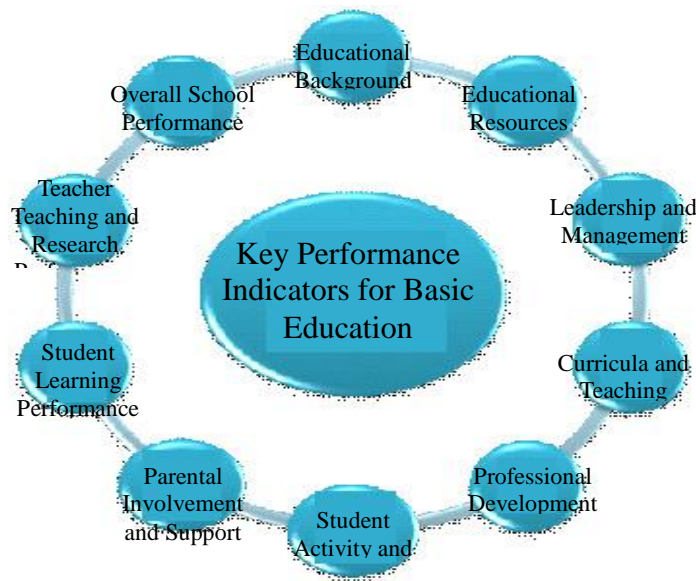


Figure 1. Preliminary framework for dimensions of KPI in basic education

RESEARCH METHOD

In this study, the validity of the research tool was confirmed by content validity. Twelve expert scholars were invited to review the questionnaire content, and based on their assessment, inappropriate items were eliminated. Phrases were also modified to make the content more subjective and realistic. The questionnaire that was reviewed by the experts was a preliminary questionnaire designed according to literature review, and the 61 items evaluated by the experts were classified as appropriate, appropriate after modification, and inappropriate. Each item had a single correct answer. The questionnaires evaluated by the experts were collected and organized, as shown in the Appendix.

Reliability in the research tool was analyzed using Cronbach α to test for internal consistency among the questionnaire items. The higher the Cronbach α , the greater the reliability of the research tool. The Fuzzy Delphi Method was used to obtain the most promising value in the questionnaire as basis for calculating the Cronbach α .

After the elimination process, the questionnaire was statistically analyzed using the Fuzzy Delphi Method. The Triangular Fuzzy Number (TFN) was then calculated using Excel 2003 version Visual Basic Application Edition (VBA) software. The basic education key indicators were then selected against this threshold value.

RESEARCH FINDINGS AND DISCUSSION

Using the data collected from the Basic Education Key Performance Indicator Construct Questionnaire Survey, this research obtained the maximum, minimum and geometric mean values of the TFN. The gray zone was then tested to verify whether expert opinions achieved convergence. Last, the degree of expert consensus on the importance of each indicator was calculated. The higher the degree of consensus value, G^i , the greater and more important the degree of consensus among

the representative experts. In this study, $G^i > 7.00$ was used as the preliminary threshold value for selecting the most appropriate and most consensual assessment indicators. Then, as recommended by the experts, $G^i > 8.00$ was used as the criteria for selecting the most critical KPI to form the basic education KPI for this research.

Expert opinions on key performance indicators for basic education

Content of key performance indicators

Using Input, Process and Output as dimensions, the different measures of basic education KPI in this research were as follow:

1. Input Dimension

<1> Educational Background

Indicators should include: student attendance rate, number of students in each grade level, student transfer rate, student drop-out rate, student-teacher ratio, ratio of students in special education, ratio of immigrant students, ratio of students from single-parent families, ratio of aboriginal students, ratio of students raised by grandparents, ratio of students from low income families, ratio of qualified teachers, ratio of substitute teachers, and teacher turnover rate.

<2> Educational Resources

Indicators should include: Total budget, cost per student, staff wages, number of computers, ratio of overhead projector per school, ratio of information and communications teacher, and ratio of guidance teacher.

2. Process Dimension

<1> Leadership and Management

Indicators should include: Educational background of principal, continuing education for principal and administrative staff, e-formalization of school affairs, standard operating procedure for business operation, and self-assessment.

<2> Curricula and Teaching

Indicators should include: School curricula development, ratio of materials compiled by teachers, teacher incorporation of information and communications in teaching, innovative teaching, diversified evaluation, teacher educational background.

<3> School Culture and Features

Indicators should include: Teacher organization of social activities, public award ceremony for teachers and staff, teacher organization of professional groups, teacher participation or development in professional growth, teacher participation in research, and school image or reputation.

<4> Parental Involvement and Support

Indicators should include: Number of parent volunteer, frequency of parental involvement in various committee, parent donation toward school funds, routine involvement in parent-teacher conference and parent association meetings, parental involvement in school activities.

3. Output Dimension

<1> Student Learning Performance

Indicators should include: Learning achievement, behavioral performance, school and off-campus awards.

<2> Teacher Instruction and Research Performance

Indicators should include: Teaching achievement exhibition, teaching performance records, school and off-campus awards, teacher research achievement.

<3> Overall School Performance

Indicators should include: parental satisfaction, reputation in the community, school assessment outcome.

Value and limitations of using key performance indicators in school operations

Summary of expert opinions of this research validates the importance of this study, and recommendations were given for avoiding possible limitations in future applications.

1. Value

Provides guidelines for development and operation of school affairs.

Provides society and parents with indicators for assessing and selecting schools.

Enables unit and individual performance evaluation, and providing a mean for school review and feedback.

Moves away from teacher centered “teaching” to student centered “learning”.

Underscores fairness and impartiality, and drawing attention to integration and reasonable distribution of resources.

Provides comprehensive quality management and encourages effective and systematic thinking for grade and junior high school performances.

2. Possible Limitations

Difficulty in quantifying school performance.

Easily influenced by external constructs, rendering it impossible to reflect qualitative performance of the school.

Unfamiliarity of school personnel toward KPI and inadequate skills in quantification.

Role of principal affects the entire school, and this critical influence was neglected.

Performance oriented operation and management of schools has replaced humanistic leadership.

Though appropriate for cities and towns, the same indicators were not appropriate for rural areas.

Selection and Analysis of the Input Dimension of the Basic Education Key Performance Indicators

The selection process for the educational background and educational resource measures of the input dimension of the basic education KPI, the outcome and indicator characteristics are analyzed and described as below:

Table 1. *Selection result of the Input Dimension of the Basic Education KPI*

Indicator	The TFN of the Most Conservative Perceived Value (C_L^i, C_M^i, C_U^i)	The TFN of the Most Optimistic Value (O_L^i, O_M^i, O_U^i)	The TFN of the Most Promising Value (A_L^i, A_M^i, A_U^i)	z^i	M^i	$M^i - z^i$	G^i
1-1-1	(3, 6.47, 9)	(7,8.79,10)	(5,7.80,9)	2	2.32	0.32	7.63
1-1-2	(4, 6.23, 9)	(7,9.00,10)	(5,7.70,10)	2	2.76	0.76	7.62
1-1-3	(3,6.12,8)	(7,8.07,10)	(4,7.31,9)	1	1.95	0.95	7.09
1-1-4	(6,7.35,8)	(8,9.43,10)	(7,7.93,9)	0	2.08	2.08	8.39
1-1-5	(3,6.53,10)	(7,8.69,10)	(4,7.35,10)	3	2.16	-0.84	7.61
1-1-6	(3,7.12,10)	(8,9.43,10)	(5,7.94,10)	2	2.31	0.31	8.27
1-1-7	(4,6.69,9)	(7,8.77,10)	(4,7.17,9)	2	2.08	0.08	7.73
1-1-8	(4,6.41,9)	(7,8.71,10)	(5,7.23,9)	2	2.30	0.3	7.56
1-2-1	(5,6.94,9)	(7,8.75,10)	(7,7.93,9)	2	1.81	-0.19	7.85
1-2-2	(4,7.00,10)	(8,9.27,10)	(8,8.60,10)	2	2.27	0.27	8.13
1-2-3	(3,6.94,10)	(8,9.15,10)	(7,8.00,10)	2	2.21	0.21	8.05
1-2-4	(6,7.25,9)	(8,9.07,10)	(7,8.25,9)	1	1.82	0.82	8.16
1-2-5	(4,6.63,9)	(7,8.43,10)	(5,7.37,9)	2	1.80	-0.2	7.53
1-2-6	(4,6.69,9)	(7,8.87,10)	(6,7.75,9)	2	2.18	0.18	7.78
1-2-7	(6,7.59,10)	(8,9.31,10)	(7,8.41,10)	3	1.72	-1.28	8.45

The above statistical analysis shows that in the selection process of the 8 indicators of educational background, 6 indicators were eliminated; and of the 7 indicators of educational resource, 3 indicators were eliminated. Therefore, as shown in Table 2, following selection and elimination based on expert opinions, the Input Dimension of the Basic Education KPI construct included measures of Educational Background and Educational Resource, totaling 6 indicators.

Table 2. *Selected Input Dimension of the Basic Education KPI*

Dimension	Measure	Indicator
Input Dimension of Basic Education KPI	1-1 Educational Background	1-1-1 Student drop-out rate (junior high school): Number of student drop-out per year/Total number of students
		1-1-2 Ratio of qualified teachers: Number of qualified teachers per year/Total number of full-time teachers
	1-2 Educational Resources	1-2-1 Cost per student: Total budget per year/Total number of students
		1-2-2 Ratio of number of computers: Total number of computers used for teaching/Number of classes
		1-2-3 Student activity space: Available area of floor space per student
		1-2-4 Available number of library books per student: Total number of library books/Total number of students

Selection and Analysis of the Process Dimension of the Basic Education Key Performance Indicators

Table 3. Selection result of the Process Dimension of the Basic Education KPI

Indicator	TFN of the Most Conservative Perceived Value (C_L^i, C_M^i, C_U^i)	TFN of the Most Optimistic Perceived Value (O_L^i, O_M^i, O_U^i)	TFN of the Most Promising Value (A_L^i, A_M^i, A_U^i)	z^i	M^i	$M^i - z^i$	G^i
2-1-1	(7,7.53,10)	(9,9.75,10)	(8,8.88,10)	1	2.22	1.22	8.64
2-1-2	(5,7.56,10)	(9,9.71,10)	(7,8.64,10)	1	2.15	1.15	8.64
2-1-3	(5,7.59,10)	(9,9.57,10)	(6,8.35,10)	1	1.98	0.98	8.58
2-1-4	(5,7.47,10)	(8,9.57,10)	(6,8.29,10)	2	2.10	0.1	8.52
2-1-5	(4,7.29,9)	(8,8.53,10)	(7,8.17,9)	1	1.24	0.24	7.91
2-1-6	(4,7.11,9)	(8,9.62,10)	(6,8.43,10)	1	2.50	1.5	8.37
2-1-7	(6,7.24,10)	(7,8.94,10)	(7,8.17,9)	3	1.71	-1.29	8.09
2-1-8	(5,6.71,9)	(7,8.63,10)	(6,7.76,9)	2	1.92	-0.08	7.67
2-2-1	(5,7.47,9)	(7,9.2,10)	(7,8.23,9)	2	1.73	-0.27	8.34
2-2-2	(6,7.93,9)	(9,9.33,10)	(6,8.23,9)	0	1.40	1.4	8.64
2-2-3	(5,6.94,9)	(8,8.44,10)	(6,7.88,9)	1	1.50	0.5	7.69
2-2-4	(4,6.52,9)	(8,8.53,10)	(6,7.52,9)	1	2.00	1	7.53
2-2-5	(6,7.64,10)	(9,9.5,10)	(7,8.64,10)	1	1.85	0.85	8.57
2-2-6	(4,6.76,9)	(7,8.73,10)	(5,7.64,9)	2	1.97	-0.03	7.75
2-2-7	(4,6.71,9)	(7,8.44,10)	(5,7.52,9)	2	1.73	-0.27	7.57
2-2-8	(4,6.88,10)	(7,8.8,10)	(6,7.76,10)	3	1.92	-1.08	7.84
2-2-9	(4,7.12,9)	(8,9.00,10)	(6,8.12,9)	1	1.88	0.88	8.06
2-3-1	(5,6.94,9)	(8,9.07,10)	(6,8.00,9)	1	2.13	1.13	8.01
2-3-2	(5,7.69,9)	(8,9.27,10)	(7,8.43,9)	1	1.58	0.58	8.48
2-3-3	(5,7.35,10)	(8,9.27,10)	(6,8.17,10)	2	1.91	-0.09	8.31
2-3-4	(5,7.29,9)	(8,9.07,10)	(6,8.18,9)	1	1.77	0.77	8.18
2-4-1	(5,7.12,10)	(8,9.07,10)	(6,7.88,10)	2	1.95	-0.05	8.09
2-4-2	(6,6.76,9)	(8,8.92,10)	(6,7.58,9)	1	2.16	1.16	7.84
2-4-3	(5,7.59,10)	(8,9.43,10)	(6,8.29,10)	2	1.84	-0.16	8.51
2-4-4	(5,6.35,9)	(8,8.57,9)	(5,7.37,9)	1	2.22	1.22	7.46
2-4-5	(5,6.94,9)	(7,8.73,10)	(6,7.64,9)	2	1.79	-0.21	7.84
2-4-6	(5,7.06,9)	(8,8.87,10)	(6,7.76,9)	1	1.81	0.81	7.96
2-4-7	(5,7.19,9)	(8,8.87,10)	(6,8.00,9)	1	1.68	0.68	8.03
2-4-8	(6,7.35,9)	(8,9.07,10)	(7,8.11,9)	1	1.71	0.71	8.21
2-5-1	(5,7.12,9)	(8,8.81,10)	(7,7.94,9)	1	1.69	0.69	7.97
2-5-2	(3,6.65,9)	(8,8.79,10)	(7,7.75,9)	1	2.14	1.14	7.72
2-5-3	(3,6,9)	(7,8,9)	(6,7.06,9)	2	2.00	0	7.00
2-5-4	(3,6.35,9)	(7,8.79,10)	(5,7.41,9)	2	2.43	0.43	7.57
2-5-5	(5,6.65,9)	(8,8.87,10)	(6,7.64,9)	1	2.22	1.22	7.76
2-5-6	(5,7.24,9)	(9,9.33,10)	(6,8.05,9)	0	2.10	2.1	8.28

The above statistical analysis shows that in the selection of the 8 indicators of Leadership and Management, 2 indicators were eliminated; of the 9 indicators of Curricula and Teaching, 5 indicators were eliminated; of the 4 indicators of Professional Development, all were preserved; of the 8 indicators of Student Activity and Support, 4 indicators were eliminated; and, of the 6 indicators of Parental Involvement and Support, 5 indicators were eliminated. Therefore, as shown in Table 4, following selection and elimination based on expert opinions, the Process Dimension of the Basic Education KPI construct included Leadership and Management, Curricula and Teaching, Professional Development, Student Activity and Support, and Parental Involvement and Support, totaling 19 indicators.

Table 4. *Selected Process Dimension of the Basic Education KPI*

Process Dimension of Basic Education KPI	2-1 Leadership and Management	2-1-1 Principal's knowledge of current educational policy: Principal's level of understanding and implementation of educational policies.
		2-1-2 Development plan for school affairs: Comprehensiveness and implementation of development plans for school affairs.
		2-1-3 Quality control: Degree of establishing and implementing standard operating procedure for school affairs, discipline (student affairs), general affairs, guidance, accounting and personnel.
		2-1-4 E-formalization of school affairs: Degree of computerization in administration and teaching.
		2-1-5 Campus safety: Number of student accident and number of reported bullying.
		2-1-6 Public relations: Degree of positive relationship between school and community.
	2-2 Curricula and Teaching	2-2-1 Curricula organization and operation: Formation of groups and group operations for various learning domains in the curricula.
		2-2-2 Curricula planning and implementation: Degree of overall curricula planning and implementation in the school.
		2-2-3 Teaching innovation: Degree of diversified and active teaching methods employed by teachers.
		2-2-4 Ratio of remedial teaching: Number of students receiving remedial teaching/Total number of students in school.
	2-3 Professional Development	2-3-1 Continuing education for principal: Number of hours of continuing education for principal per year.
		2-3-2 Ratio of hours of continuing education for teachers: Total hours of continuing education for teachers/Total number of teachers.
		2-3-3 Teacher's professional groups for learning: Number of teachers in school forming professional groups.
		2-3-4 Ratio of teachers evaluated for professional development: Number of teachers evaluated for professional development/Total number of teachers.
	2-4 Student Activity and Support	2-4-1 Campus club activity: Degree of student participation in campus club activities.
		2-4-2 Reading activity: Number of students borrowing library books/Total number of students.

		2-4-3 Activity award: Number of students publicly receiving awards/ Total number of students.
		2-4-4 Student activity support: School funding for student activities/Total number of students.
	2-5 Parental Involvement and Support	2-5-1 Parental participation in school activities: Number of parents participating in school activities per year.

Selection and Analysis of the Output Dimension of the Basic Education Key Performance Indicators

Table 5. Selection result of the Output Dimension of the Basic Education KPI

Indicator	TFN of the Most Conservative Perceived Value (C_L^i, C_M^i, C_U^i)	TFN of the Most Optimistic Perceived Value (O_L^i, O_M^i, O_U^i)	TFN of the Most Promising Value (A_L^i, A_M^i, A_U^i)	z^i	M^i	$M^i - z^i$	G^i
3-1-1	(6,8.24,10)	(10,10,10)	(7,8.71,9)	0	1.76	1.76	9.12
3-1-2	(5,7.5,10)	(7,9.43,10)	(7,8.35,10)	3	1.84	-1.16	8.51
3-1-3	(4,6.88,10)	(7,9.06,10)	(5,7.88,10)	3	2.19	-0.81	7.97
3-1-4	(5,7.29,9)	(9,9.41,10)	(7,8.17,9)	0	2.12	2.12	8.36
3-1-5	(4,6.17,10)	(7,8.46,10)	(5,7.17,10)	3	2.29	-0.71	7.32
3-1-6	(3,6.12,9)	(7,8.54,10)	(5,7.25,9)	2	2.42	0.42	7.33
3-1-7	(6,6.94,10)	(9,9.07,10)	(6,7.88,10)	1	2.13	1.13	8.00
3-1-8	(6,6.29,10)	(8,9.40,10)	(6,8.35,10)	2	3.11	1.11	7.85
3-1-9	(5,8.88,9)	(9,9.33,10)	(7,8.47,10)	0	0.45	0.45	9.11
3-1-10	(5,7.18,9)	(8,8.88,10)	(6,8.05,9)	1	1.70	0.7	8.03
3-2-1	(6,7.8,9)	(8,9.13,10)	(7,8.29,9)	1	1.33	0.33	8.46
3-2-2	(5,6.56,10)	(8,8.93,10)	(6,7.62,9)	2	2.37	0.37	7.75
3-2-3	(5,6.65,9)	(8,8.86,10)	(6,7.62,9)	1	2.21	1.21	7.75
3-2-4	(4,6.71,10)	(8,8.86,10)	(5,7.58,10)	2	2.15	0.15	7.78
3-3-1	(7,8.24,10)	(10,10,10)	(8,8.94,10)	0	1.76	1.76	9.12
3-3-2	(6,7.94,10)	(9,9.75,10)	(7,8.76,10)	1	1.81	0.81	8.85
3-3-3	(6,7.75,10)	(9,9.54,10)	(7,8.35,10)	1	1.79	0.79	8.64
3-3-4	(5,7,10)	(8,9.13,10)	(7,8.18,10)	2	2.13	0.13	8.07
3-3-5	(5,7.93,10)	(9,9.56,10)	(7,8.81,10)	1	1.63	0.63	—

The above statistical analysis shows that in the selection process of the 10 indicators of Student Learning Performance, 4 indicators were eliminated; of the 4 indicators of Teacher Teaching and Research Performance, 3 indicators were eliminated; and, of the four indicators of Overall School Performance, all were retained. Therefore, as shown in Table 6, following selection and elimination based on expert opinions, the Output Dimension of the Basic Education KPI construct included measures of Student Learning Performance, Teacher Teaching and Research Performance and Overall School Performance, totaling twelve indicators.

Table 6. Selected Output Dimension of the Basic Education KPI

Output Dimension	3-1 Student Learning	3-1-1 Learning achievement performance: Student learning performance in various learning domains.
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	Performance	3-1-2 Student scholastic test performance: Student performance in various county and city level scholastic tests.
		3-1-3 Student specialty: Number of students with specialty in arts or sports/Total number of students in school.
		3-1-4 Excellent behavioral performance (grade school): Number of students winning awards under award system/Total number of students in school.
		3-1-5 Physical fitness performance: Degree of student performance beyond standard criteria for physical fitness tests.
		3-1-6 School and off-campus awards: Number of students winning awards in school and off-campus competitions or activities per year/Total number of students in school.
	3-2 Teacher Teaching and Research Performance	3-2-1 Ratio of keeping teaching records: Number of teachers keeping teaching records/Total number of teachers.
	3-3 Overall School Performance	3-3-1 Parental satisfaction: Parent satisfaction toward school.
		3-3-2 School reputation: Degree of high regard of community (society) for the school.
		3-3-3 Evaluation performance of school affairs: Passed assessment criteria or ranking in school affairs assessment.
		3-3-4 Awards conferred to school: School won awards from county or above level organizations, such as Top Schools award, Excellent Schools award, and Exemplary Schools award.
		3-3-5 School culture: Degree of warmth and care exhibited by school personnel.

Analysis of the Importance of Basic Education Key Performance Indicators

Importance ranking of the various dimensions of basic education key performance indicators

In this research, the basic education KPI were classified into the input dimension of the basic education KPI, the process dimension of the basic education KPI, and the output dimension of the basic education KPI. Table 7 ranks the Gi value of the experts' perceived importance of the indicators in the three dimensions.

Table 7. Importance ranking of Gi values among the basic education KPI in the various dimensions

Dimension	Mean Gi value	Ranking
Input dimension of basic education KPI.	8.24	3
Process dimension of basic education KPI.	8.34	2
Output dimension of basic education KPI.	8.59	1

Table 7 shows that of the three dimensions of basic education KPI, the mean Gi of the Output Dimension of Basic Education KPI ranked first; the mean Gi of the Process Dimension of Basic Education KPI ranked second; and, the mean Gi of the Input Dimension of Basic Education KPI ranked third.

Evidently, the Fuzzy Delphi experts believed that among the basic education KPI dimensions, the Output Dimension of Basic Education KPI was the most important dimension.

Importance ranking of the various measures of basic education key performance indicators

In this research, the basic education KPI was classified into 10 measures. Table 8 ranks the Gi value of the experts' perceived importance of the indicators in the various measures according to their dimensions.

Table 8. Mean Gi values and ranking among the measures of the basic education KPI

Dimension	Measures	Mean G i value	Ranking Within the Dimension	Ranking Among the Measures
Input Dimension	1-1 Educational Background	8.33	1	6
	1-2 Educational Resource	8.20	2	10
Process Dimension	2-1 Leadership and Management	8.47	1	3
		8.40	2	5
	2-2 Curricula and Teaching	8.25	4	8
	2-3 Professional Development	8.21	5	9
		8.28	3	7
	2-4 Student Activity and Support			
Output Dimension	2-5 Parental Involvement and Support			
	3-1 Student Learning Performance	8.52	2	2
		8.46	3	4
	3-2 Teacher Teaching and Research Performance	8.69	1	1
	3-3 Overall School Performance			

Evidently, the Fuzzy Delphi experts believed that in the output dimension of the basic education KPI, Overall School Performance was the most important measure.

Ranking of the Importance of Various Indicators among the Basic Education Key Performance Indicators

In this research, there were a total of 37 indicators in the basic education KPI. Table 9 shows the Gi value of experts' perceived importance, and ranks the various dimensions of indicators and overall ranking.

Table 9. Mean Gi value and rankings among the indicators of basic education KPI

Dimension	Measure	Indicators	G i Value	Ranking Within the Measures	Ranking Within the Dimension	Overall Ranking
Input Dimension of	1-1 Educational	1-1-1 Student dropout rate (Junior high): Number of student dropout per year/Total number of students	8.39	1	2	18

Basic Education KPI	Background	1-1-2 Ratio of qualified teachers: Number of qualified teachers per year/Total number of full-time teachers.	8.27	2	3	24
	1-2 Educational Resource	1-2-1 Cost per student: Total funding per year/Total number of students.	8.13	3	5	28
		1-2-2 Ratio of number of computers: Total number of computers used for teaching/Number of classes.	8.05	4	6	33
		1-2-3 Student activity space: Available area of floor space per student	8.16	2	4	27
		1-2-4 Available number of library books per student: Total number of library books/Total number of students	8.45	1	1	17
Process Dimension of Basic Education KPI	2-1 Leadership and Management	2-1-1 Principal's knowledge of current educational policy: Principal's level of understanding and implementation of educational policies.	8.64	1	1	6
		2-1-2 Development plan for school affairs: Comprehensiveness and implementation of development plans for school affairs.	8.64	1	1	6
		2-1-3 Quality control: Degree of establishing and implementing standard operating procedure for school affairs, discipline (student affairs), general affairs, guidance, accounting and personnel.	8.58	3	4	10
		2-1-4 E-formalization of school affairs: Degree of computerization in administration and teaching.	8.52	4	6	12
		2-1-5 Campus safety: Number of student accident and number of reported bullying.	8.37	5	9	19
		2-1-6 Public relations: Degree of positive relationship between school and community.	8.09	6	15	29
	2-2 Curricula and Teaching	2-2-1 Curricula organization and operation: Formation of groups and group operations for various learning domains in the curricula.	8.34	3	10	21
		2-2-2 Curricula planning and implementation: Degree of overall curricula planning and implementation in the school.	8.64	1	1	6
		2-2-3 Teaching innovation: Degree of diversified and active teaching methods employed by teachers.	8.57	2	5	11
		2-2-4 Ratio of remedial teaching: Number of students receiving remedial teaching/Total number of students in school.	8.06	4	17	32
	2-3 Professional	2-3-1 Continuing education for principal: Number of hours of continuing education for principal per year	8.01	4	19	36

	Development	2-3-2 Ratio of hours of continuing education for teachers: Total hours of continuing education for teachers/Total number of teachers.	8.48	1	8	15
		2-3-3 Teacher's professional groups for learning: Number of teachers in school forming professional groups.	8.31	2	11	22
		2-3-4 Ratio of teachers participating professional development evaluation: Number of teachers participating in professional development evaluation/Total number of teachers.	8.18	3	14	26
	2-4 Student Activity and Support/	2-4-1 Campus club activity: Degree of student participation in campus club activities.	8.09	3	15	29
		2-4-2 Reading activity: Number of students borrowing library books/Total number of students.	8.51	1	7	13
		2-4-3 Activity awards: Number of students publicly receiving awards/Total number of students.	8.03	4	18	34
		2-4-4 Student activity support: School funding for student activities/Total number of students.	8.21	2	13	25
	2-5 Parental Involvement and Support	2-5-1 Parental participation in school activities: Number of parents participating in school activities per year.	8.28	1	12	23
	Output Dimension of the Basic Education KPI	3-1-1 Learning achievement performance: Student learning performance in various learning domains.	9.12	1	1	1
		3-1-2 Student scholastic test performance: Student performance in various county and city level scholastic tests.	8.51	4	7	13
		3-1-3 Student specialty: Number of students with specialty in arts or sports/Total number of students in school.	8.36	3	9	20
		3-1-4 Excellent behavioral performance (grade school): Number of students winning awards under award system/Total number of students in school.	8.00	6	12	37
		3-1-5 Physical fitness performance: Degree of student performance beyond standard criteria for physical fitness tests.	9.11	2	3	3
		3-1-6 School and off-campus awards: Number of students winning awards in school and off-campus competitions or activities per year/Total number of students in school.	8.03	5	11	34

	3-2 Teacher Teaching and Research Performan ce	3-2-1 Ratio of keeping teaching records: Number of teachers keeping teaching records/Total number of teachers.	8.46	1	8	16
	3-3 Overall School Performan ce	3-3-1 Parental satisfaction: Parent satisfaction toward school.	9.12	1	1	1
		3-3-2 School reputation: Degree of high regard of community (society) for the school.	8.85	2	4	4
		3-3-3 Evaluation performance of school affairs: Passed assessment criteria or ranking in school affairs assessment.	8.64	4	6	6
		3-3-4 Awards conferred to school: School won awards from county or above level organizations, such as Top Schools award, Excellent Schools award, and Exemplary Schools award.	8.07	5	10	31
		3-3-5 School culture: Degree of warmth and care exhibited by school personnel.	8.75	3	5	5

CONCLUSION

Following the recommendations provided by the Fuzzy Delphi Method experts, the basic education KPI constructed in this research comprised 3 major dimensions, 10 measures and 37 indicators.

Input dimension of basic education key performance indicators

Following the recommendations provided by the Fuzzy Delphi Method experts, 9 indicators in this dimension were eliminated from the original 15 indicators, resulting in 6 remaining indicators. Due to their G_i value and $A_i M$ value not achieving the 8.00 threshold, the following indicators were eliminated: "Student attendance rate: School's student attendance per year", "Student registration rate: School's new student registration per year," "Rate of students transferring out: Number of student transferring out per year /Total number of students," "Student-Teacher ratio: Number of students per year/Total number of full-time teachers," "Educational background of principal: Whether principal has master's degree or above," "Educational background of teachers: Number of full-time teachers with master's degree or above per school/Total number of full-time teachers," "Total funding: Total school funding per year (including supplementary funding for special projects)," "Ratio of overhead projectors in school: Total number of overhead projectors in school/Number of classes," and "Ratio of specialized classroom: Specialized classroom/Total number of classrooms in school."

Process dimension of basic education key performance indicators

Following the recommendations provided by the Fuzzy Delphi Method experts, 16 indicators in this dimension were eliminated from the original 35 indicators, resulting in 19 remaining indicators. Due to their G_i value and $A_i M$ value not achieving the 8.00 threshold, the following indicators were eliminated: "Ratio of budget implementation: Ratio of budget implementation for school funds per

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International Conference: Innovative Research in a Changing and Challenging World year," "Self-assessment: Number of yearly self-assessment organized by school," "Curricula improvement: Number of self-assessment for curricula each semester," "Ratio of supplementary teaching materials compiled by teachers: Number of teachers compiling supplementary teaching materials/Total number of teachers," "Teaching observations: Number of teaching observations organized by teachers/Total number of teachers," "Ratio of information and communications integrated into teaching: Number of teachers integrating information and communications into teaching per year/Total number of teachers," "Diversified assessment: Number of diversified assessments adopted by each teach per year/Total number of teachers," "Off-campus learning activity: Degree of student participation in off-campus learning activities," "Guidance activity: Number of students receiving guidance/Total number of students," "Arts activity: Number of arts activity organized by school each year," "Physical education activity: Number of physical education activity organized by school each year," "Ratio of school parent volunteer: Number of parents volunteering in school per year/Total number of students," "Parent participation in various committee operations: Frequency of parents participating in various committee operations per year," and "Classroom parent associations meetings: Organization of classroom parent associations and degree of operations."

Output dimension of basic education key performance indicators

Following the recommendations provided by the Fuzzy Delphi Method experts, 7 indicators in this dimension were eliminated from the original 19 indicators, resulting in 12 remaining indicators. Due to their G_i value and $A_i M$ value not achieving the 8.00 threshold, the following indicators were eliminated: "Student standardized test performance (junior high school): Ratio of students with standardized test score >80," "Excellent behavioral performance (junior high school): Number of students given merits per year/Total number of students in school," "Rule violations (junior high school): Number of students given demerits or warnings per year/Total number of students in school," "Character performance: Number of students receiving awards for excellent character performance/Total number of students in school," "Ratio of teachers engaging in research: Number of research that teachers participated in/Total number of teachers," "School and off-campus awards: Frequency of awards won by teachers per year in school and off-campus competitions or activities/Total number of teachers," and "Ratio of excellent teachers: Number of teachers receiving local government or national excellent teacher awards in last five years/Total number of teachers."

Among the 37 indicators constructed in this research, the top five perceived by the experts as most important had G_i values >8.75. From the highest to the lowest, these indicators were "3-1-1 Learning achievement performance: Student learning performance in various learning domains" and "3-3-1 Parental satisfaction: Parent satisfaction toward school" ($G_i = 9.12$), "3-1-5 Physical fitness performance: Degree of student performance beyond standard criteria for physical fitness tests" ($G_i = 9.11$), "3-3-2 School reputation: Degree of high regard of community (society) for the school" ($G_i = 8.85$) and "3-3-5 School culture: Degree of warmth and care exhibited by school personnel" ($G_i = 8.75$). The above ranking showed that when comparing the importance of the basic education KPI with other indicators, members of the expert team viewed the above five indicators as more important.

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APPENDIX: QUESTIONNAIRE

1. Input dimension of basic education key performance indicators

(1)Educational Background measure

		Level of Appropriateness
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Item Detail	Preliminary Definition	Appropriateness	Modifi- cation	Not Appropri- ate
1-1-1 Student attendance rate	School's student attendance rate per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification:				
1-1-2 Student registration rate	School's new student registration per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification:				
1-1-3 Rate of student transferring out	Number of student transferring out/Total number of students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification:				
1-1-4 rate of student dropout (junior high)	Number of student dropout per year/Total number of students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification:				
1-1-5 Student-teacher ratio	Number of students per year/Number of teachers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification:				
1-1-6 Ratio of qualified teachers	Number of qualified teachers per year/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification:				
1-1-7 Educational background of principal	Whether principal has master's degree or above.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification:				
1-1-8 Educational background of teachers	Number of teachers with master's degree or above per school/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(2)Educational Resource measure

Item Detail	Preliminary Definition	Level of Appropriateness	Modifi- cation	Not Appropri- ate
Total Budget	Total school funding per year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
1-2-2 Cost per student	Total funding per year/Total number of students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
1-2-3 Number of computers	Total number of computers/Number of classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
1-2-4 Student activity space	Student activity space: Available area of floor space per student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				

1-2-5 Ratio of overhead projector per school	Total number of overhead projectors in school/Number of classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
1-2-6 Specialized classrooms	Specialized classrooms/Total number of classrooms in school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
1-2-7 Total number of library books per school	Total number of library books/Total number of students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Process dimension of basic education key performance indicators

(1) Leadership and Management measure

Item Detail	Preliminary Definition	Level of Appropriateness		
		Appropriate	Appropriate After Modification	Not Appropriate
2-1-1E-formalization of school affairs	Degree of computerization in administration and teaching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-1-2 Principal's knowledge of current educational policy	Principal's level of understanding and implementation of educational policies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-1-3 Development plan for school affairs	Comprehensiveness and implementation of development plans for school affairs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-1-4 Quality Control	Quality control: Degree of establishing and implementing standard operating procedure for school affairs, discipline (student affairs), general affairs, guidance and personnel.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-1-5 Ratio of budget implementation	Ratio of budget implementation for school funds per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-1-6 Campus Safety	Number of student accidents and number of student injuries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-1-7 Public relations	Positive relationship between school and community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-1-8 Self-assessment	Yearly self-assessment organized by school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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(2) Curricula and Teaching measure

Item Detail	Preliminary Definition	Level of Appropriateness		
		Appropriate	Appropriate After Modification	Not Appropriate
2-2-1 Supplementary teaching materials compiled by teachers	Number of teachers compiling supplementary teaching materials/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-2-2 Curricula improvement	Self-assessment for curricula each semester.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-2-3 Curricula organization and operation	Organization and operation of curricula groups for each learning domain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-2-4 Teaching observations	Number of teaching observations organized by teachers/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-2-5 Remedial teaching	Ratio of disadvantaged students receiving remedial instructions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-2-6 Integration of information and communications into teaching	Number of teachers integrating information and communications into teaching per year/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-2-7 Teaching innovation	Teaching methods besides lecturing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-2-8 Diversified assessment	Assessment methods besides paper-and-pen tests.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(3) Professional Development measure

Item Detail	Preliminary Definition	Appropriateness level		
		Appropriate	Appropriate After Modification	Not Appropriate
2-3-1 Continuing education for principal	Number of hours of continuing education for principal per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				

2-3-2 Continuing education for teachers	Total number of hours of continuing education for teachers in school/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-3-3 Teacher's professional groups for learning	Number of teacher professional groups in school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-3-4 Professional development evaluation	Number of teachers participating in for professional development evaluation: Number of teachers evaluated for professional development/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-3-5 School culture	Warmth and care exhibited by school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(4) Student Activity and Support Measure

Item Detail	Preliminary Definition	Appropriateness Level		
		Appropriate	Modifiable After	Not Appropriate
2-4-1 Campus club activity	Student participation in campus club activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-4-2 Off-campus learning activity	Student participation in off-campus learning activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-4-3 Reading activity	Ratio of students borrowing library books.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-4-4 Activity support	School personnel and funding support for student participation in various activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-4-5 Activity award	School publicly awarding students for excellent performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-4-6 Arts activity	Types of arts activity organized by school each year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-4-7 Physical education activity	Types of physical education activity organized by school each year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(5) Parental Involvement and Support measure

Item Detail	Preliminary Definition	Appropriateness Level		
		Appropriate	Appropriate After Modification	Not Appropriate
2-5-1 Number of school parent volunteers	Number of parents volunteering in school per year/Total number of students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-5-2 Frequency of parents participation in various committee operations	Frequency of parents participating in various committee operations per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-5-3 Parent donation to school funds	Ratio of total school fund that is donated by parents per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2-5-4 Routine meeting of classroom parent associations	Routine classroom parent association meetings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-5-5 Routine operations of school parent associations	Routine operations of school parent associations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
2-5-6 Parental involvement in school activities	Frequency of parents participating in school activities per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Output dimension of basic education key performance indicators

(1) Student Learning Performance measure

Item Detail	Preliminary Definition	Appropriateness level		
		Appropriate	Appropriate After Modification	Not Appropriate
3-1-1 Learning achievement performance	Student learning performance in various learning domains.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-1-2 Student specialty	Ratio of students with specialty in arts or sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-1-3 Behavioral performance	Junior High School: Number of students given merits and awards or demerits and warnings per year. Grade School: Students winning awards under award system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Suggestion for modification				
3-1-4 Physical fitness performance	Physical fitness test performance for all students in the school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-1-5 School and off-campus awards	Number of students winning awards in school and off-campus competitions or activities per year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(2) Teacher Teaching and Research Performance measure

Item Detail	Preliminary Definition	Appropriateness Level		
		Appropriate	Appropriate After	Not Appropriate
3-2-1 Teaching records performance	Number of teachers keeping teaching records/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-2-2 School and off-campus awards	Frequency of teachers winning awards in school and off-campus competitions or activities per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-2-3 Excellent teachers	Number of teachers awards local government or national level excellent teacher awards in last five years/Total number of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(3) Overall School Performance measure

Item Detail	Preliminary Definition	Appropriateness Level		
		Appropriate	Appropriate After	Not Appropriate
3-3-1 Parental Satisfaction	Level of parent satisfaction toward school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-3-2 School reputation	Community assessment of school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-3-3 Evaluation performance of school affairs	Passed assessment criteria or ranking in school affairs assessment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suggestion for modification				
3-3-4 Awards conferred to	Awards conferred to school, such as Top Schools award, Excellent Schools award, and Exemplary Schools award.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Conference proceeding

International Conference: Innovative Research in a Changing and Challenging World

school				
Suggestion for modification				

Collaborative Research into the Affordances of Place for Primary School Children's Literacy Learning

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ABSTRACT

As In the context of culturally diverse high poverty areas of Australia, we have conducted collaborative research with teachers and students in a primary school for more than a decade. Teachers have been exploring the affordances of place-based pedagogies (Gruenewald & Smith, 2008) for the development of students' spatial literacies and their understandings of the politics of places and built environments (Comber, Nixon, Ashmore, Loo & Cook, 2006; Comber, Thomson and Wells, 2001). This paper reports on a project in which the affordances of placed-based pedagogy are being explored through teacher inquiries and classroom-based design experiments (Cobb, Confrey, di Sessa, Lehrer & Schauble, 2003). Located within a large-scale urban renewal project in which houses are being demolished and families relocated, the original school has been replaced by a larger school that serves a population from a wider area. In this paper we draw on the study to consider the challenges of working with teachers and primary school students to study innovative ideas and practices in educational research. Specifically we consider issues raised by collaborative studies of the affordances of cross-curricular projects focusing on social and environmental change to engage students in academic learning and expand their literate repertoires in a changing policy climate.

Keywords: Collaborative research, university and school-based researchers, design-based research, place-based pedagogy, critical literacy.

INTRODUCTION

Literacy education research has a long tradition of collaborative inquiry (Cochran-Smith & Lytle, 1993, 2009; Comber & Kamler, 2009). Indeed many literacy researchers began their educational careers as teachers and engaged in action research and teacher inquiries about their practice before joining the academy. This is our experience. Committed to the potential importance of teachers researching the effects of the everyday practices, we have experimented across our working lives with ways of undertaking empirical classroom research into literacy learning that respect and truly involve teachers whilst recognising the priorities and complexities of their work. At the same time we understand the imperative to ensure that educational research is rigorous and systematic in order for it to properly inform wider policy and practices. But what do these competing demands mean? What does it mean to conduct collaborative research with teachers in an era of audit

cultures? To what extent is it possible to conduct research with teachers, to seriously address the nexus between theory, policy and practice?

We explore these questions and others in this paper by examining our extended work with one primary school teacher, Marg Wells. The wider context of our inquiries is urban renewal in the highly multicultural western suburbs of Adelaide, South Australia. For over two decades Wells has worked as a teacher in schools in this area which has been undergoing significant urban regeneration, culminating in 2010 and 2011 with the demolition of three primary schools (in two of which Wells taught) and the construction and opening of a new super school (where Wells continues to teach). Over this time we have worked with Wells and her colleagues on a range of projects all designed in various ways to document how teachers working in challenging circumstances – high cultural diversity, high poverty, urban change – design and enact innovative inclusive and critical literacy pedagogies and the effects on different students' literacy learning.

In this chapter our objective is to revisit this work in order to problematize and complicate the notion of collaboration in educational research. 'Wells' case' is used to demonstrate what it actually takes to accomplish 'collaborative research' from the perspective of various stakeholders, including ourselves as academic researchers. Our aim is not to dissuade educational researchers from undertaking collaborative research, but to examine more fully what it takes to do justice to such a term, and the necessary limits of such endeavours.

BACKGROUND

Before discussing our collaborative research with this teacher in terms of its scope, purposes, methods, insights and limits, it is necessary to define our focus and the relevant concepts and literature upon which we are drawing. As will be clear, this work has a long history and continues to evolve, hence it is not surprising that it is both complex and not at all neat.

It has been suggested that all research requires at least three kinds of work: head work, field work and text work (McWilliam, Lather & Morgan, 1997). Our school-based research requires all three. In regard to text work, in terms of research approaches, over time we have drawn on action research (Carr & Kemmis, 1986), practitioner inquiry (Cochran-Smith & Lytle, 1993), case study (Dyson & Genishi, 2005), and design-based research (Cobb et al. 2003). In terms of literacy, theories of critical literacy (Freire & Macedo, 1987; Janks, 2010; Luke, 2000, 2012) and multiliteracies (New London Group, 1996; Cope & Kalantzis, 2000) underpin each of the studies. In terms of place studies, we have engaged with theories of place and space (LeFebvre, 1991; Massey, 2005; Soja, 1996) as well as grounded work in place-based education (Gruenewald & Smith, 2008; Smith & Sobel, 2010). We also routinely invite our collaborators to participate in text work, sharing with them relevant theoretical and empirical research literature. Wells, for example, has engaged with scholarly reading, especially reading that she saw as having explanatory power for understanding her context and her students or that was generative in terms of portrayals of innovative pedagogy. In the New literacy Demands in the Middle Years of Schooling project she explored with us the affordances of place-based pedagogy (Gruenewald & Smith, 2008) for students' literacy learning. Below we first provide a brief description of our understanding of literacy then outline how and why we have recently brought theories of space and place into our conceptualization and framing of critical literacy. We conclude this section with a discussion of the term collaborative research as it was relevant to this study.

Critical literacy and multiliteracies

We have a long history of collaborative engagement with teachers exploring theories of critical literacy in action in schools (e.g. Comber & Simpson, 2001; Comber & Nixon, 1999, 2005; Luke, O'Brien & Comber, 1994). Our approach has been to see what is possible in classrooms when teachers engage deeply with theory and have opportunities to test out ideas and practices with diverse groups of children. Underpinning our understanding of school literacy practices are the beliefs that no texts are neutral, that power relations operate in all situations, that textual practices are constitutive of identities but always subject to interrogation and revision, and that pedagogy is a matter for negotiation in situ. More recent approaches to literacy have recognized the multi-modal, multi-media nature of communications and the subsequent potential for young people to become not only meaning-makers, texts users and analysts but also to become text designers and producers (Cope & Kalantzis, 2000; Janks, 2010; New London Group, 1996). The teachers with whom we have worked understand the relationships between language, power and identity and seek to expand young people's repertoires of practices for comprehension, representation and communication by inventing ambitious, challenging real-world tasks with social consequences.

In the context of collaborative research on the affordances of urban renewal, a critical multiliteracies approach has emerged which positions teachers, researchers and students as co-inquirers, working together to examine the proposed changes to the local environment and the school from the perspectives of the children and their teachers. Such work has involved deconstruction and critique (for example of the planning documents), design and action (for example working cooperatively to imagine, design and make a school garden) and community enquiries (such as family surveys and oral history). To some degree the research elements have needed to evolve organically and be negotiated in situ, rather than following neat pre-scripted data collection processes. Hence when we report this work to fellow educational researchers as critical literacy for example, we often encounter questions that reveal our peers are looking for tidier predictable designs, with set methods, time-scales and so on. This is rarely possible or desirable.

Space, place and place-based education

Like critical approaches to literacy, place-based approaches to education recognize that space and place are constitutive of people's relationships and subjectivities, not static backdrops or contexts for the real action. As such they need to be considered as part of educational practice and policy-making. Our work is typically located in culturally diverse and poor areas, hence we cannot ignore place and, like our teacher collaborators, we wished to overtly contest the deficit labels that frequently get attached to poor communities. Without romanticizing the struggles of poor, working-class and culturally diverse communities, we wanted to re-think their experiences, their relationships to place(s), the physical places themselves—including changing 'built' and 'natural' environments—as resources for literacy learning. In particular feminist geographer, Doreen Massey's (2005) notion of meeting places, where people are thrown together, and must negotiate new possibilities new trajectories, has been generative for our thinking about place-based critical literacy.

In bringing together critical literacy with spatial approaches to pedagogy we are already working in an interdisciplinary fashion. This complexity requires some flexibility as we conduct collaborative inquiries with teachers; our research agenda is necessarily organic. This is not something we, or they, automatically know how to do. Such work requires ongoing discussion and clarification. The curriculum foci and the pedagogical work are prioritized in children's interests and also to meet the demands of school and systems; with this in place teachers then use the space of the research

collective to design tasks and learning events which capture their imaginations and allow for collaborative inquiry between them and their students, and which they hope will illuminate our shared research questions.

Collaborative educational research

It is important, for our purposes, to note the 'critical' history of the term 'collaboration'. A seminal text on collaboration in educational research is Carr and Kemmis' (1986) book *Becoming Critical: Education, Knowledge and Action Research*. In Australia at least this book became compulsory reading in the 80s and 90s for those of us being inducted into the world of educational research through masters and doctoral degrees. An earlier practical volume titled *The Action Research Planner* (Kemmis & McTaggart, 1981) guided many university researchers and practitioners in designing and carrying out applied research projects and it remains a popular primer to this day. Kemmis, Carr, McTaggart and colleagues emphasized the political and relational nature of educational research. In this approach, research is understood as involving the problematisation of everyday practices and ways of knowing. Educational action research was motivated by the central problem that education institutions tend to reproduce rather than alleviate disadvantage. The explicit motivation in conducting action research was to improve education and make it more just.

From the outset there was recognition that improving education was going to take a collective effort because it involves language and discourses, activities and practices and social relationships and forms of organization (Kemmis & McTaggart, 1981, pp15-16). In order to accomplish change, the research enterprise is necessarily complex and collaborative and beyond what an individual alone can achieve. We recall this political genesis of collaborative research here because more recent versions can sound straightforward and unproblematic. Yet, as we go on to demonstrate, collaborative educational research is always a matter of ongoing negotiation. Ideally collaborative action research involves sharing participation in all aspects of the process (planning, acting, observing and reflecting) – creating the potential for learning for all participants. Teacher-researchers would thus ideally participate in the 'theoretical, practical and political discourse' associated with conducting research (Carr & Kemmis, 1986, p. 200). Of course how such ambitious goals would be accomplished in real-time, and within the conditions and constraints of teachers' and researchers' working lives, was still to be imagined and achieved in practice.

Also working overtly to democratize the research process in order to enhance educational equity are Marilyn Cochran-Smith and Susan Lytle (Cochran-Smith & Lytle, 1993, 2009). Their extensive body of research and publication conducted across several decades, often with teacher-researchers, identified some of the contradictions faced by educators wanting to undertake genuinely collaborative equity-driven research. Within the academy, collaborative research with teachers is often seen as not fitting the traditional approaches to research. As Cochran-Smith and Lytle (2009, pp. 102-104) acknowledge, this work is openly political, often messy, 'jointly negotiated' and the usual hierarchical relationships of universities (in terms of grades, hiring and firing and promotion and so on) are difficult to apply to research produced through collaborative research. From the perspectives of those who work in schools, there are also micro-politics amongst teachers (in terms of experience, authority, status), issues around role definition, and so on. In addition, as they point out, however strong the collaboration, it is still likely that the academic researchers rather than teachers will receive more accolades and direct rewards associated with publishing the research. They raise several important questions about the nature of collaborative inquiry, some of which we return to below.

1. For example, quotation or interview transcriptions (Style = Quote). How do differently positioned participants select or allocate responsibilities for facilitation, design, and documentation of the research process?
2. What kinds of questions do practitioners raise and value, and how do these shape the collaboration and research on the collaboration?
3. What conventions of writing, what audiences, and what modes of data collection and analysis are ultimately privileged, even when the explicit intention is not to perpetuate the dominance of the university?
4. How do various collaborators participate in conceptualizing, drafting, revising, and editing, and what does collaboration really mean, when sometimes, in the final product, we retain for ourselves the “last word” or the shape of the “final draft”?
5. How and when are alternatives to traditional writing and publishing venues that may align with the agendas of some participants in the collaboration more than others pursued, and by whom?
6. When is action without writing the preferred outcome of a collaborative practitioner research project, and how can it be negotiated? (Cochran-Smith & Lytle, 2009, p. 103)

Cochran-Smith and Lytle particularly interrogate the fact that academics stand to benefit the most in collaborative research, and as such, maintain certain aspects of the power relations to ensure that academic outcomes are fulfilled. We do not pursue all these questions here, but we want to highlight the question about what collaboration actually means and appropriate it for our own purposes below. We want to explore this by considering, still from our viewpoint, what we believe that collaboration requires from a teacher. What are the frames of reference she needs to consider? What’s the work involved? How is it managed?

COLLABORATION FOR INNOVATIVE RESEARCH AND PEDAGOGY

As explained above, we have undertaken classroom research with teachers about critical literacy for over twenty years. Our objective, shared with many teacher-researchers, has been to make a difference to the children and young people who are least advantaged by the economic, social and educational conditions in which they find themselves growing up. During this time we have become increasingly interested in the pedagogical affordances of place as a concept and curriculum design heuristic for extending diverse learners’ literate repertoires. To this end, we have been working closely with a small group of teachers who are concerned to facilitate for young people in their care the development of a deep sense of ‘belonging’ in the context of school and local community (but also more globally) in ways that do not negate other identities and histories (see Nixon & Comber, 2012).

The paper is based in part on research from an Australian Research Council (ARC) Linkage Project, *New literacy demands in the middle years: learning from design experiments* (No. LP0990692). The project is a collaboration between the Queensland University of Technology, the University of South Australia, the University of Sydney, the Department of Education and Children’s Services (DECS) (SA) and the Australian Education Union (AEU) SA Branch. Chief investigators are Barbara Comber, Peter Freebody and Helen Nixon. Partner investigator is Victoria Carrington (the University of East Anglia, UK). Research Fellow is Anne-Marie Morgan (the University of South Australia). In the New Literacy Demands in the Middle Years study¹, a design-based experiment approach (Cobb et al., 2003) was employed to conduct school-based inquiries into possibilities and constraints of working with three

starting points for innovative curriculum design—curriculum literacies (particularly in science and maths), digital youth cultures, and place-based pedagogies—as possible ways to help young people in the middle-primary and lower-secondary years of school negotiate ‘the new literacy demands’ they face in contemporary society. In this paper we confine our discussion to the work of Marg Wells and place-based pedagogies but first we outline something of the longer history of our collaborations with her. This history is important because we have found that what can be asked of teachers as collaborating researchers is contingent upon trust and shared collective expertise where each other’s particular strengths are recognised, understood and built upon as reciprocal learning resources.

Introducing Marg Wells: experienced and innovative teacher-researcher

Primary school teacher Marg Wells has a well-developed researcher disposition that has been developed over a considerable length of time in the many projects in which she has collaborated with the authors (See Table 1). However, even though she has been teaching for decades, Wells does not see her ‘development’ as a teacher as finished; she continues to regard herself as a learner and to think of her teaching as ‘evolving’. Despite the complexity of teaching, and the increasing intensification of teachers’ work in current times, Wells remains energised by her ongoing curiosity about how she can best support her students’ learning and their future participation in the world as active learners and responsible citizens. When questioned recently about why she continues to value collaborative research projects, Wells described her ongoing need to ‘experiment’ and to find ‘the space to be creative’. We hear echoes here of Massey’s (2005) approach to place where ‘thrown togetherness’ forces the negotiation of new possibilities. This epitomizes what might be possible in truly collaborative research communities. In Wells’ view, collaborative projects help her to satisfy both these needs. She reported that working on challenging and demanding topics—such as ‘spatial literacies’ and urban renewal, first inspired by collaborations with the authors and architect and university academic Stephen Loo (Comber, Nixon, Ashmore, Loo & Cook, 2006; Comber & Nixon, 2008)—has been very important for her personal and professional well-being:

I like being challenged on that level, to be able to take on interesting ideas and look at what we’ve got, and see how that can be manipulated and expanded, just to be able to create something that’s not the usual, not boring, something a bit more exciting and interesting, and relevant, and motivating, (*chuckles*), all those things. And it’s not just for the kids. You want it to be like that for yourself as a teacher as well.

Projects in which Wells has participated have all involved collaborations between university researchers and school leaders and teachers who work in publicly funded schools that serve high-poverty and socially diverse populations.

Table 1. *Literacy research and development projects in which teacher Marg Wells has participated*

	Date	Project Title and Funding Body
1	1994	Literacy acquisition and the construction of success and failure in disadvantaged schools (university)
2	1996	Literacy acquisition and the construction of success and failure in disadvantaged schools (state government education department)
3	1998-2000	Socio-economically disadvantaged students and the development of literacies in school: A longitudinal study (Australian Research Council)
4	2001	Critical literacy, social action and children's representations of "place" (university)
5	2004-2005	Urban renewal from the inside-out: Students and community involvement in

		re-designing and re-constructing school spaces in a poor neighbourhood (Myer Foundation, Australia)
6	2006-2007	Critical literacy: redesigning school learning in high poverty communities (Australian Literacy Educators' Association)
7	2009	Investigating literacy Years 4-9: A pilot study (state government education department)
8	2010	New literacy demands in the middle years of schooling: Learning from design-based experiments (Australian Research Council)

Since first introduced to the principles and practices of critical literacy and place-based pedagogy, Wells has continued to find them productive resources and has allowed us to document her innovative use of them while teaching in schools in the 'The Parks' area (Nixon & Comber, 2012). Now referred to as Westwood (<http://www.westwoodsa.com.au/>), this area is the site of Australia's largest urban renewal project and home to culturally diverse families, including Aboriginal families, recently arrived immigrants and refugees, and first- and second-generation immigrant families. For over a decade, people who live in this region have seen post World War Two semi-detached publicly subsidized housing being demolished and replaced by new housing designed for first home buyers. Many families who were initially attracted to the area by cheap rental accommodation are no longer able to afford to live there and some families have progressively left the area or been relocated to publicly subsidized housing some distance away. Along with these wider economic and social developments in the region, a recent decision was made to close two schools and open a new 'superschool' on the grounds of the school where Wells teaches; hence three small neighborhood schools were combined into one large new school that began operation from the start of the 2011 school year. Below we describe some typical examples from Wells' critical literacy and place-based pedagogical and inquiry practices during the *New Literacy Demands* project. The focus of Wells' practice was the exploration of young people's feelings of *belonging* in, and their *memories* about, the spaces of the school that were being rebuilt during 2010.

Collaboration in changing research and policy contexts

Given that the authors have been co-researchers over an extended time it is not surprising that the period has been marked by change in terms of the educational policy context and indeed wider social policy. In terms of educational ideologies we can characterize this twenty year period as moving from progressive educational discourse highlighting children's development, multicultural inclusive education and indeed even critical literacy to an insistence upon measurable outcomes, human capital approaches to education and audit cultures. In terms of literacy, we have seen in Australia the introduction in 2009 of the National Assessment of Literacy and Numeracy (NAPLAN) (Australian Curriculum and Assessment Authority (ACARA), 2012), national testing at Years 3, 5, 7 & 9, where school results are reported annually on the MySchool web-site (ACARA, 2010). More recently we have seen the development and implementation of the Australian curriculum (initially English, Maths, Science & History) in 2012 (ACARA, 2011). In terms of undertaking collaborative research there are several challenges in this mix for both the collaborating teachers (and their school communities) and also for the researchers.

In the projects listed above the goals of the education department, and at times the school principal, were understandably aligned with current or anticipated state and national policy demands. This meant that they were looking for us to undertake research which would position them well for the next challenge. Increasingly this has meant a focus on demonstrating measurable learning outcomes and increasingly as measured by standardized tests. As researchers driven by social justice, we have

struggled with the ethics of the new accountability demands, and indeed we have critiqued the effects of NAPLAN (e.g. Comber, 2012; Comber & Nixon, 2011). We have a history of undertaking research with teachers, like Marg Wells, whose students achieve well academically against the odds, due to their innovative curriculum design and inclusive pedagogy. Recently the added challenge has been to undertake such work whilst also addressing school and departmental requirements to demonstrate improvement in traditional literacies and to deliver an increasingly standardized curriculum. This means another layer of work for Wells and other collaborating teachers as they negotiate these competing demands: to innovate in curriculum and pedagogy, to work for social justice, and to simultaneously deliver on what is mandated and rewarded by the system.

Some would argue that despite the rhetoric there is now less space than ever for innovation, for designing creative and critical curriculum. Wells, however, to this point remains an expert designer of such learning opportunities, viewing each new cohort of students, the wider institutional and social policy context, and the neighbourhood realities as a set of opportunities as well as constraints from which to problem-solve and accomplish a meaningful and challenging series of learning opportunities. Her collaborations with us as university researchers and with her students as co-inquirers are central to the ways in which she makes space to innovate and to do so ethically.

Although Marg Wells' curriculum design changes yearly, and her teaching practices have been honed with experience, they are based on a common set of principles and approaches. At its heart, her practice is based on building a sense of mutual respect, collaboration and 'belonging' in her classroom and a sense of responsibility for others and the wider school and community. While these objectives would be shared by many of her peers, the tight integration of these objectives into the curriculum and learning activities is rare in our experience. A distinctive feature of Wells' approach is the way she is able to create space that enables her to hold to her long-held principles, and at the same undertake teacher inquiry, despite an increasingly crowded curriculum and prescriptive policy climate. Some characteristics of her practice that enable Wells to create the required space to undertake this complex work include:

- working across the curriculum (e.g. English, Design and Technology and the Arts)
- positioning students as co-researchers
- introducing students to key research practices (observation, note-taking, interviewing, etc)
- tackling topics that are central to students' everyday lives
- exploring the reasons for and effects of physical and social change
- working in pairs and groups in order to achieve complex tasks as a collective
- having a public outcome with social consequences.

Positioning students as co-researchers of topics that matter to them

In this section we briefly consider the ways in which Wells positions students as co-researchers, develops their research skills and provides opportunities for their knowledge to be disseminated to others. Over a number of projects we have witnessed Wells explicitly teach each student cohort how to conduct research about place, change and belonging. In undertaking this work she operates as many ethnographers strive to do in 'making the familiar strange'. Because the curriculum has often been focused on the study of place, and belonging in place, many of the children's activities have taken place outside the classroom on neighbourhood walks, in the school grounds, and so on. As Wells points out, this can pose challenges for some students. Like all forms of research, however,

“outside’ research ... needs practicing, sharing, modelling, checking and supervising.’ The production of records—in the form of photographs, journals, models and collectively produced class books—support this process. Such artefacts are regularly consulted and revisited as part of the process of reflection on what knowledge is being produced and what remains to be learned.

During the New Literacy Demands project, in introducing children to the idea of observation, she designed tasks where they were required to describe in detail familiar objects, such a clock or a fence. The idea was to have them look again and notice the taken-for-granted in the material world. She wanted them to learn to see as ‘researchers’ and also to develop the linguistic repertoires to carefully describe what they could see, understand and explain. On one occasion she discovered that her class had limited ways of giving each other directions – a lack of spatial language. As this was going to be vital to studying the material change going on around them she spent time and energy so that students could safely experiment with giving each other directions; for instance in the drama space following directions blindfolded and so on. After considerable practice and rehearsing different scenarios, students were required to write directions for getting from home to school. The point we wish to make here is that Wells took time to watch and listen to her students, to find out what they could already do and what they needed to learn, and she afforded them similar opportunities to assemble repertoires of practice over time.

Questioning the site manager about building design and progress

In addition to focusing on developing students’ skills of observation, Wells also focused on developing students’ research skills of listening, questioning and interviewing. During the early stages of the new building works in 2010, her collaboration with building site manager David Chatwin resulted in him making fortnightly visits to the classroom over a period of many months to provide updates on the building works and answer children’s questions. After each session with the site manager, Wells assisted students to reflect on the visits, focusing on helping them to sort the information they had been given, write up notes into well-constructed sentences, and identify which kinds of questions had provided the most relevant and interesting information. Questions posed by the children included:

General: How many trees will be saved? Do the upper primary students get bigger classrooms? Is there going to be insulation in every building?

Statistics: How big is the whole site? How much will it cost to build the school? How many bricks will be used in the whole school?

Personal: When did you start building? What was the most interesting building you have built? How many hours do you work in a week?

This process enabled students to systematically develop and practice their skills in listening, note-taking and asking questions, to improve their confidence in speaking to an adult in a large group setting, to increase their knowledge about how their new school was built and to become familiar with its layout. In Wells’ view her collaboration with the building manager not only helped students to develop research skills, but also it contributed to their developing sense of ‘belonging’ to the school in its changing form:

By working with Mr David Chatwin this year, asking questions, taking notes, studying plans, viewing slideshows, making observations and recording the progress, students have developed an ‘ownership’ of the new school. The new school is no longer an ‘unknown’. Instead, my students are now familiar with the layout, they know where to find things and how to move around. They value this knowledge. It helps them to feel like they belong, that it is ‘theirs’.

Interviewing teachers and peers about memories of the school

One of Wells' overall goals for her students was that they would develop confidence and competence in English, both as speakers and listeners. As discussed above, she organized repeated opportunities for students to interview the project manager who was overseeing the building of the new school. She built further on this work in the production of a class-researched Memories book. Students worked with a partner to conduct a number of interviews with school staff and peers about the memories of the school. Before preparing to undertake the interview students had already talked and written about the concept of memories, including their own memories of starting school. This mobilizing of their own memories oriented them to the topic. As a class Wells and the children brainstormed questions that might elicit memories. The final protocol for staff asked them about their role in the school, whether their role had changed in the time they had been at the school, what they enjoyed about working there, changes they had seen during their time at the school, and a memory they wanted to share. The student interviews asked about how long they had been attending the school, what they enjoyed the most and why, and what they will always remember about the school. Students practiced interviewing each other and using recording devices and taking notes from the conversations. In deciding which students would work together to conduct the interviews, Wells chose 'capable' students to support others. Some students conducted a number of interviews or assisted others to do so. Others focused on accomplishing just one good interview and writing up their notes. Students were responsible for booking an interview time and giving interviewees a protocol of questions prior to recording the interview. Staff wrote notes on the interview protocol and students also took notes as the interview transpired. Students took photographs of their informants. Students were then required to write summaries of the interview and to check the texts with the interviewee and their teacher. It is clear that the entire process of interviewing was undertaken with care. Students had multiple opportunities to fully prepare and practice, and knew what their responsibilities were with respect to the data and contributing to the class-made book. This was not easy work as students had to work with the interviewees' notes, their own notes and audio-data and then paraphrase or quote their informants in a past tense third person summary.

The resulting hard-cover book *Ridley Grove Primary School 2010: Memories* (Wells & Class, 2010) is 50 pages in length and self-published through Target Photobooks Editor™ software (<http://target.photo-products.com.au/>). Most pages have several photographs of staff and/or students and quotations from the interviews recorded by Wells' students. Wells produced the book based on the students' written summaries of interviews they conducted, drawn from field notes and audio-recordings. From the point of view of Wells' original goals for students' language and literacy development, becoming researchers and journalists positioned them as powerful observers and listeners who needed to attend to their speaking and listening in order to guarantee the quality of the memories recorded. Key themes in the book include the multicultural make-up of the school population, friendships, preferred and memorable events (such as assemblies, staff-students sporting events, plays, fun days), and changes in the school such as new digital communication devices.

Disseminating the outcomes of research

An important aspect of learning to be a researcher is developing the skills to publicly disseminate the knowledge that has been produced. This is rarely attempted by teacher-researchers unless they are also pursuing academic studies. Their time is often very constrained, and they may not have sufficient motivation to commit to writing for publication. Although we have had some success co-

authoring with and 'ghost writing' for teacher-researchers we do not underestimate the difficulties involved. In relation to her student-researchers, Wells takes pains to ensure that public presentations and publicly available outcomes of their knowledge production are part of the learning process. This may take the form of class books produced for the classroom and library, presentations to school assemblies or school governing bodies, and publications in the school newsletter.

All these forms of dissemination were used in the New Literacy Demands project. For example, copies of the Memories book described above were made available in the school library and presented to the school principal, and further copies of the book were able to be reproduced by interested teachers, parents and others using the publisher's online facility. More regular presentations of their ongoing research about the new school building program, and the history of the original school, were made by students to whole-school assemblies during each phase of the curriculum work. For example, here is how one of Wells' students opened a school assembly in which students reported on their work as developing interviewers and journalists:

This term our topic is about interviews. We are becoming journalists. This topic helps us with our speaking skills, confidence, listening skills and note-taking skills. We are interviewing all staff members, all teachers and some students. Room 15 has to be very organized by setting their interview times with staff and teachers. We work in pairs. One person in every group has a folder and on the front of it is an interview checklist. After the interviews the information collected will be written as a text then made into a book. We are enjoying it so much and we are at the stage of having interviews. We are doing this because it is the last year of Ridley Grove and we want to keep the memories alive.

In this Year 4 student's notes for her oral presentation to the school assembly we can see how she has appropriated the teacher's discourse about 'becoming journalists'; she confidently uses the terms which are central to the teacher's learning goals of developing students' speaking, note-taking and listening skills. The student explains the processes through which their research will be accomplished (in pairs, with an interview checklist), what it requires (managing interview times) and the intended outcomes (a book which will keep memories alive). This short text illuminates the way in which Wells makes the classroom a site for democratic inquiry and shared responsibility. It captures the take-up by students of the logic of the learning processes and the educational discourses in which they are participants.

CONCLUSION

To return to our earlier questions and those from the literature on collaborative research: What does it take for a teacher to seriously engage in collaborative research? What does it mean to collaborate? What are the limits and possibilities inherent in such work for different stakeholders? As Wells' case demonstrates, this kind of collaborative inquiry requires a teacher who is committed to her own learning as a practicing professional. And this learning is not confined to the classroom; she engages in ongoing reading, thinking, researching. The classroom, however, to some degree can be considered as her experimental site—where she embarks on a series of ongoing inquiries with her students to find out what they know—in order better to design tasks and events that are tailored to their learning. As we have documented here and elsewhere, Wells is a fearless risk-taker when it come to imagining and accomplishing ambitious learning projects. Positioning the students as co-researchers helps her to create the space for such work. The opportunities for students' literacy repertoires to flourish are significant as they engage continuously in real-world communication events. It is not that there are no obstacles in this work. As an accomplished teacher Wells' class

often comprises a number of students with challenging behaviors. However, through her focus on belonging and place-conscious education, she is usually able to negotiate curriculum that engages them in meaningful learning. Wells is able to engage in ongoing collaborative inquiries because she ensures that the research participation is designed around her learners' needs.

There is no question that Wells' collaboration, and that of her peers, in 'our research' takes time and energy beyond what the funds for this and other studies can provide. So collaboration takes generosity and resilience. Collecting and producing research artefacts requires considerable forethought and extra administrative work. At another level, participating in a research community also comes with multiple challenges for teachers: going public with their practice, re-thinking assumptions, discussing theory, analyzing data, documenting their work and collecting evidence of children's learning. These are the demands of serious intellectual work. The teachers with whom we work also want to 'give us what we need' to meet the demands of our funding bodies. Hence we are engaged in conversations about the kinds of data that will address their questions, and indeed our questions (where these are different). Some data are more easily produced than others. Many teachers are uncomfortable with classroom observation for example. Others welcome another adult into their classrooms. From our perspective, the specific data demands of a study depend on the research questions, but once a way of working or collaborating on the research has been negotiated in one project, it may be difficult to shift to another way of working to meet the demands of a different design or methodology. These issues are rarely discussed because research, even collaborative research, is typically reported in terms of one-off studies. Collaborative research needs to be considered as an endeavor beyond the one-off project—as a program of inquiry. Because it builds upon reciprocal educative relationships it often occurs over significant time-scales and across institutional locations. In such work, time and place are more than simply contextual; they are constitutive of what can be negotiated.

We now believe that truly collaborative research requires such relationships. Of course collaborative studies must start somewhere and we remain interested in the exploring the kinds of conditions that might foster the next generation of teacher-researchers (Comber & Kamler, 2009). As researchers committed to democratizing educational inquiry, we recognize that sometimes our research might be seen as small-scale, not replicable, and therefore as having limited impact with respect to current preoccupations with citations and large-scale educationally modeling. These are risks that we are prepared to take. Ultimately educational equity needs to be imagined and constructed in schools. After all, systems and policy-makers will always (even if it is not acknowledged) need ground-breaking teacher-researchers such as Wells who keep imagining and delivering significant learning against the odds.

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