INNOVATION AND TRANSFORMATION IN LEARNING AND TEACHING
21-22 October 2013
Tunku Abdul Rahman University College
Kuala Lumpur, Malaysia

PROCEEDINGS
TARC INTERNATIONAL CONFERENCE ON LEARNING AND TEACHING

Innovation And Transformation In Learning And Teaching

21 – 22 October, 2013
Tunku Abdul Rahman University College, Kuala Lumpur, Malaysia
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**Communication & Information Technology Centre**
Mr. Lee Yik Sheng

**Centre For Continuing Professional Education**
Dr. Oo Pou San
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<td>Ms Er Pek Hoon, Winnie</td>
<td>Senior Lecturer, Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman, Malaysia</td>
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<tr>
<td>Prof Dr Ewe Hong Tat</td>
<td>Vice President (Internationalisation and Academic Development), Universiti Tunku Abdul Rahman, Malaysia</td>
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<tr>
<td>Dr Iqbal Akthar</td>
<td>Programme Leader in Mass Communications, Liverpool John Moores University, United Kingdom</td>
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<tr>
<td>Assoc Prof Dr Neo Mai</td>
<td>Associate Professor and Head of Multimedia Systems, Faculty of Creative Multimedia, Multimedia University, Malaysia</td>
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<tr>
<td>Assoc Prof Dr Neo Tse Kian</td>
<td>Associate Professor &amp; Dean, Faculty of Creative Multimedia, Multimedia University, Malaysia</td>
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<tr>
<td>Dr Simon Stobart</td>
<td>Dean, School of Computing, Teesside University, United Kingdom</td>
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<tr>
<td>Prof Dr Zoraini Wati Abas</td>
<td>Director, Center for Learning, Teaching &amp; Curriculum Development di Universitas Siswa Bangsa Internasional (USBI), Jakarta</td>
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<tr>
<td>Dr Simon Lau Boung Yew</td>
<td>Assistant Professor, Faculty of Engineering and Science, Universiti Tunku Abdul Rahman, Malaysia</td>
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<td>Assoc Prof Shane Dawson</td>
<td>Deputy Director, Academic Learning Services, Learning and Teaching Unit, Office of the Director - LTU, City West Campus, University of South Australia, Australia</td>
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<td>Helen Gilmore</td>
<td>Library, Teaching and Learning Services, Lincoln University, New Zealand</td>
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<tr>
<td>Sarah King</td>
<td>Senior Lecturer, Learning, Teaching and Assessments Advisor, School of Law, Faculty of Education, Law &amp; Social Sciences, Birmingham City University, United Kingdom</td>
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<tr>
<td>Paul Bartholomew</td>
<td>Head of Curriculum Design and Academic Staff Development, Birmingham City University, United Kingdom</td>
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<td>Prof Chenicheri (Sid) Nair</td>
<td>Professor, Higher Education Development, University of Western Australia, Australia</td>
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<tr>
<td>Prof Dr Lynette Louw</td>
<td>Professor of Management, Deputy Dean, Faculty of Commerce, Rhodes University, Grahamstown, South Africa</td>
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<tr>
<td>Prof Sam Allwinkle</td>
<td>Director of Lifelong Learning, Edinburgh Napier University, United Kingdom</td>
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<td>Dr Wah Hoon Siew</td>
<td>Reader, University of Strathclyde, United Kingdom</td>
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<td>Dr Andy Roberts</td>
<td>Assistant Dean (Research), University College Birmingham, United Kingdom</td>
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<td>Dr Lai Weng Kin</td>
<td>Associate Professor, Faculty of Engineering and Built Environment, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Dr Yeo Chu May</td>
<td>Principal Lecturer, Management Department, Faculty Of Accountancy, Finance &amp; Business, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Prof Melvyn Pryer</td>
<td>Dean, School of Recreation, Sport &amp; Tourism, University College Birmingham, United Kingdom</td>
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<tr>
<td>Paul Russell</td>
<td>Assistant Dean School of Hospitality, Food and Events Management, University College Birmingham, United Kingdom</td>
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<tr>
<td>Dr Susanne Owen</td>
<td>Academic Developer, Learning and Teaching Unit, Academic Development, Magill Campus, Adjunct Research Fellow, Division of Education, Arts and Social Sciences, School of Education, Mawson Lake Campus, University of South Australia, Australia</td>
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<tr>
<td>Prof Alistair McCulloch</td>
<td>Head, Research Education, Learning and Teaching Unit, Research &amp; Scholarship, City East Campus, University of South Australia, Australia</td>
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<tr>
<td>Dr Choy Siew Chee</td>
<td>Head of Perak Branch Campus, Tunku Abdul Rahman University College, Malaysia</td>
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<tr>
<td>Mr Kiefer Lee</td>
<td>Principal Lecturer in Marketing, Sheffield Hallam University, United Kingdom</td>
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<tr>
<td>Mr Lau Lee Yee</td>
<td>Director, Department of Academic Programmes, Singapore Polytechnic, Singapore</td>
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<tr>
<td>Dr Monika Foster</td>
<td>Senior Lecturer and Senior Teaching Fellow, Edinburgh Napier University, United Kingdom</td>
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<td>Dr Narendra Kumar Gupta</td>
<td>Professor of Electrical Engineering, Edinburgh Napier University, United Kingdom</td>
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<td>Dr Neil Mitchell</td>
<td>Senior Lecturer, School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, United Kingdom</td>
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<tr>
<td>Dr Shanthi Nadarajan</td>
<td>Senior Lecturer, Center for Language Studies, Universiti Malaysia Sarawak, Malaysia</td>
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<td>Dr Siew Pei Hwa</td>
<td>Assistant Professor, Faculty of Creative Industries, Universiti Tunku Abdul Rahman, Malaysia</td>
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<td>Ms Tan Li Peng</td>
<td>Programme Leader, Faculty of Applied Sciences and Computing, Tunku Abdul Rahman University College, Malaysia</td>
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<tr>
<td>Dr Tang Mui Joo</td>
<td>Deputy Dean, Faculty of Social Science, Arts and Humanities, Tunku Abdul Rahman University College, Malaysia</td>
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<tr>
<td>Mr Timothy John Mulroy</td>
<td>International Collaborative Portfolio Director, Sheffield Hallam University, United Kingdom</td>
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<td>Assoc Prof Dr Ting Su Hie</td>
<td>Lecturer, Universiti Malaysia Sarawak, Malaysia</td>
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<td>Dr Yip Mum Wai</td>
<td>Associate Dean, Department of Mechanical Engineering, Faculty of Engineering and Built Environment, Tunku Abdul Rahman University College, Malaysia</td>
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<tr>
<td>Ms Saraswathy a/p Thurairaj</td>
<td>Lecturer, Faculty of Creative Industries/Department of Modern Languages and Literature, Universiti Tunku Abdul Rahman, Malaysia</td>
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<tr>
<td>Dr Lee Jer Vui</td>
<td>Assistant Professor, Department of Mechatronics and Biomedical Engineering, Faculty of Engineering and Science, Universiti Tunku Abdul Rahman, Malaysia</td>
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<td>Dr Ng Kim Hooi</td>
<td>Associate Dean, Department of Physical Science, Faculty of Applied Sciences and Computing, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Associate Dean, Department of Social Science, Faculty of Social Science, Arts and Humanities, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Dr Chook Ka Joo</td>
<td>Director, Department of Quality Assurance, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Dr Oo Pou San</td>
<td>Director, Centre for Continuing Professional Education, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Name</td>
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<td>Dr Chua Ping Yong</td>
<td>Dean, Faculty of Engineering and Built Environment, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Dr Lim Hee Chuan</td>
<td>Associate Professor, Faculty of Applied Sciences and Computing, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Dr Hor Yew Fong</td>
<td>Associate Professor, Faculty of Applied Sciences and Computing, Tunku Abdul Rahman University College, Malaysia</td>
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<td>Dr Shaun Nykvist</td>
<td>Senior Lecturer, Faculty of Education, School of Curriculum, Queensland University of Technology, Australia</td>
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<td>Assoc Prof Deborah Henderson</td>
<td>Associate Professor, Faculty of Education, School of Curriculum, Queensland University of Technology, Australia</td>
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<td>Dr Denise Beutel</td>
<td>Senior Lecturer, Faculty of Education, School of Cultural and Professional Learning, Queensland University of Technology, Australia</td>
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<tr>
<td>Dr Gavin Sanderson</td>
<td>Senior Lecturer, Learning and Teaching Unit, Teaching &amp; Learning Services, City West Campus, University of South Australia, Australia</td>
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<td>Director, Learning and Teaching, Office of the Director - LTU, City West Campus, University of South Australia, Australia</td>
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<tr>
<td>Mrs Eva Kipnis</td>
<td>Senior Lecturer in Marketing, Marketing and Advertising, Faculty Of Business, Environment And Society, Coventry University, United Kingdom</td>
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<td>Assoc Prof Sidney Weil</td>
<td>Associate Professor in Accounting, Faculty of Commerce, Lincoln University, New Zealand</td>
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<td>Sara DiDomenico</td>
<td>Senior Tutor Communications, Faculty of Commerce, Lincoln University, New Zealand</td>
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<td>Maurice Ward</td>
<td>Library, Teaching and Learning Services, Lincoln University, New Zealand</td>
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<td>Assoc Prof Mitchell Clark</td>
<td>Associate Professor, Mount Royal College</td>
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<td>Dr Ian J Bradshaw</td>
<td>Subject Leader in Pharmaceutical &amp; Chemical Sciences, Liverpool John Moores University, United Kingdom</td>
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<td>Teh Lee Wah</td>
<td>Senior Lecturer, Faculty of Applied Sciences and Computing, Tunku Abdul Rahman University College, Malaysia</td>
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In the last couple of weeks, as I was considering what to write in this preface, I had the opportunity to view a number of videos from the “15 TED talks that will change your life” website. I found some of the insights from the speakers inspiring and relevant to our objectives.

Ken Robinson in his talk titled “Schools Kill Creativity” discusses the pitfalls of education, where so much emphasis is placed on cognitive information with the emphasis toward the left brain seen in how we measure academic ability and intelligence, and the lack of emphasis on the arts and creativity. How true this is when we look at the way we conduct our classes, lectures and assessment. Yet we would like to develop graduates who are creative and can think out of the box. When we fail to get the desired responses from our students in the participation of this cognitive exercise, we sometime dangle the carrot in the form of rewards in the hope of improving participation. Dan Pink in his talk, “The Puzzle of Motivation”, where he explores the efficacy of rewards and punishment in the workplace, discusses on the research work done where researchers have found that for tasks that are mundane and procedural reward was a great motivator. Whereas, when the job needed the workers to think out of the box, rewards had an opposite effect. A rethinking of our approaches to education is hence, necessary.

Geniuses who are intellectually way ahead of normal people often excel in our education system. So is the aim to develop graduates who are intellectually sound. Is arts always secondary to the sciences? So much of our education have been shaped by the industrial age where the emphasis was on engineering and business. Education was creating jobs that are repetitive (workers in factories) and developing supervisors to ensure the smooth running of these processes. Before the industrial age, much more emphasis was placed on philosophy, the Aristotle’s and the Confucius. There was also much emphasis on the arts like music, where we had the Mozart’s and Beethoven’s, and also the great painters like the Van Gogh’s and the Rembrandts, whose work is studied centuries on.

In education today, we are looking not just at the cognitive domain but psychomotor and affective domains. Although this is a more balanced approach, yet by compartmentalising education, the legacy of the “industrial age” is still very much evident. The papers in this proceeding do fall into the trap of “industrial age legacy” but there are also some whose approaches are rather different and interesting. The hope is that from here, we may be able to generate more research work that focuses on the creativity of the human mind and not just focusing on one half of the brain.

In conclusion, I would like to take this opportunity to thank all who have contributed to this proceeding. Members of the Editorial committee, the international team of reviewers and last but not least the authors of the papers.

Dr Chua Ping Yong
Editorial Chair

TARC INTERNATIONAL CONFERENCE 2013 ON LEARNING AND TEACHING
It is a great pleasure for me to write a message for our TARC International Conference, 2013 on Teaching and Learning (TIC2013): Innovation and Transformation. This conference is aimed at establishing a platform to collaborate and share research findings to enhance learning and teaching approaches. It will also provide an opportunity for the international community to share knowledge, experiences and expertise in learning and teaching.

This is the third International Conference on Learning and Teaching organized by the Tunku Abdul Rahman University College, and I am happy to see a good number of quality papers submitted to the conference. 51 papers were selected for presentation this year, of which 13 papers were on innovative methodologies and strategies in learning, teaching and assessments, 13 discussed about digital learning and teaching eco-system, and 25 papers discussed the effects of globalisation on institutional policies and professional development. These papers were peer-reviewed by sixty (60) academia from the United Kingdom, Australia, New Zealand, South Africa, Indonesia, Singapore and Malaysia.

The TARC International Conference on Learning and Teaching has always been unique. It is unique because the authors are usually practitioners and the problems defined are real classroom phenomenon that need attention from education researchers and educators. They analysed and interpreted research findings not only based from prior educational research findings but also based on their invaluable interactions with the learners in the classroom. Such experiences and findings are really useful to researchers in educational concepts and theories development towards effective learning and teaching.

The Proceedings for TIC2013 consists of a few position papers. These papers highlighted areas that believed to be of good interest of many educators and education researchers. The papers offer logical yet interesting strategies to counter the problem definitions.

Thank you to all the authors, reviewers, editorial committee members for the good papers. I am sure all of you will enjoy the Conference and have good exchange and networking in the two conference days.

Dr Ng Swee Chin
Editorial Advisor

TARC INTERNATIONAL CONFERENCE 2013 ON LEARNING AND TEACHING
## PROGRAMME

### MONDAY, 21 OCTOBER 2013

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<td>9.30 – 10.00am</td>
<td><strong>Welcome Address &amp; Opening</strong></td>
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<td></td>
<td>By YBhg Datuk Dr Tan Chik Heok</td>
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<td></td>
<td>President, Tunku Abdul Rahman University College</td>
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<tr>
<td>10.00 – 10.45am</td>
<td><strong>Keynote Address 1</strong></td>
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<td></td>
<td><em>Student-Centred Strategies for Enhancing Experience and Attainment</em></td>
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<tr>
<td></td>
<td>by Professor Roger Eccleston</td>
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<td></td>
<td>Pro Vice-Chancellor</td>
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<td></td>
<td>Sheffield Hallam University, United Kingdom</td>
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<tr>
<td>10.45 – 11.15am</td>
<td>TEA BREAK</td>
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### Parallel Sessions

#### 11.15 – 11.40am

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<td>C1-1</td>
<td>C1-2</td>
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<tr>
<td>Aligning institutional strategy with technology enhanced learning for pedagogic innovation</td>
<td>“All hype, no relevance? Students’ Perceptions of Marketing Education”</td>
<td>Innovation and Transformation of Practical Teaching in a Private University Malaysia</td>
<td>The Information and Communication Technology (ICT) in Philippine Education: Prospect for International Collaborative Learning</td>
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<tr>
<td>Margaret Hicks, University of South Australia</td>
<td>Audrey Malenee Mariadass and Choy Siew Chee, Tunku Abdul Rahman University College, Malaysia</td>
<td>Kyi Kyi Tha, Monash University Sunway Campus, Malaysia</td>
<td>Gisela V. Rolluqui, Technological University of the Philippines, Philippines</td>
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#### 11.40am – 12.05pm

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<tr>
<td>Leadership Style and Learning Organization in a Private Higher Education Institution in Malaysia</td>
<td>National curriculum reform and equipping pre-service teachers to teach about Australia in the Asian Century</td>
<td>Developing a multicultural teacher education curriculum using a collaborative-participatory process</td>
<td>Innovation in active learning: applying lessons learnt at Sheffield Hallam University to support information and academic literacy development of TAR College students</td>
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<tr>
<td>Geeta Ann Sulamuthu and Priya Sulamuthu, Sunway College Johor Bahru, Malaysia</td>
<td>Deborah Henderson, Queensland University of Technology, Australia</td>
<td>Wilma S. Reyes, Philippine Normal University, Philippines</td>
<td>Alison Lahlafi, Diane Rushton, Sheffield Hallam University, United Kingdom</td>
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<td><strong>12.05 – 12.30pm</strong></td>
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<td>Plagiarism-tracking software: Instructors’ perception of software use vs. actual purpose of software</td>
<td>The Long Way Round: Graduate Entry Pre-service Teachers’ Pathways into Teaching</td>
<td>Modifying Classroom Culture for better Learning</td>
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<td>Zeenath Reza Khan, University of Wollongong, IN Dubai, UAE</td>
<td>Denise Beutel and Leanne Crosswell, Queensland University of Technology, Australia</td>
<td>Anatoli Vakhguevt and Su Chen Wang, Nazarbayev University, Kazakhstan and Swinburne University of Technology, Malaysia</td>
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<td><strong>12.30 – 1.30pm</strong></td>
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<td><strong>1.30 – 2.15pm</strong></td>
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<td>Keynote Address 2</td>
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<td>The Impact of Global Links and Partnership Working on Internationalisation at Teesside University</td>
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<td>by Professor Caroline MacDonald</td>
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<td>Deputy Vice-Chancellor (Partnerships &amp; Standards)</td>
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<td>Teesside University, United Kingdom</td>
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<td><strong>Parallel Sessions</strong></td>
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<td><strong>2.15 – 2.40pm</strong></td>
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<td></td>
<td>Assessing the learning experiences of business students working in cross-cultural virtual teams</td>
<td>A Case Study: Using SERVQUAL Model In Open and Distance Education.</td>
<td>ESL Students’ perceptions of the effects of interdiscursivity when learning writing skills for professional communication</td>
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<td></td>
<td>Sarah Horton-Walsh, Julia Tyrrell and Carmela Bosangit, Coventry University, United Kingdom</td>
<td>Chiam Chooi Chea and Nur Azlin Omar, Open University Malaysia, Malaysia</td>
<td>Lee Mun Yee, Choy Siew Chee and Daljeet Singh Sedhu, Tunku Abdul Rahman University College, Malaysia</td>
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<td><strong>2.40 – 3.05pm</strong></td>
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<td>B2-2</td>
<td>C2-3</td>
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<td>Designing Learning Management System to Encourage E-learning Sustainability</td>
<td>Student destination choices in international education: exploring students’ attitudes to study abroad.</td>
<td>Measuring Intangible Cultural Heritage: Case Study of Knowledge and Practices of Malacca Cultural Communities</td>
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<td>Yee Mei Lim, Keh Niang Chee, Aladdin Ayesh and Martin Stacey, Tunku Abdul Rahman University College, Malaysia, and DeMontfort University, United Kingdom</td>
<td>Monika Foster, Edinburgh Napier University, United Kingdom</td>
<td>Aisyah Abu Bakar, Mariana Mohamed Osman and Syahriah Bachok, International Islamic University Malaysia, Malaysia</td>
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<tr>
<td>Time</td>
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<td>3.05–3.35pm</td>
<td>TEA BREAK</td>
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<td><strong>INVITED PAPERS</strong></td>
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<td></td>
<td><strong>Sub-Theme:</strong> International Collaboration Research and innovation: The Role of International Partners, The Challenges and Outcomes: Experience from Science Education for Diversity Project Grant under EU FP7.</td>
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</table>
| 3.35–3.55pm| **Title 1:** Dialogic Research Approach in Cross Cultural Project Management: A Way to Value Voices from Cross Culture Partners Towards the Construction of a Design Based Framework  
Dr Ng Swee Chin  
Tunku Abdul Rahman University College, Malaysia |
| 3.55–4.15pm| **Title 2:** Science Education for Diversity – the Malaysian Perspective  
Dr Oo Pou San  
Tunku Abdul Rahman University College, Malaysia |
| 4.15–4.35pm| **Title 3:** The Challenges of Constructing a Model for Science Education – Differences in Students’ and Teachers’ Attributes of Six Partner Countries  
Dr Ng Swee Chin  
Tunku Abdul Rahman University College, Malaysia |
| 4.35–4.55pm| **Title 4:** Effects of the Design Based Framework Incorporating the Dialogic Approach, Student Funds of Knowledge and Inquiry Based Learning on Student Acquisition of Science in Two Malaysian Schools: A Case Study  
Dr Choy Siew Chee  
Tunku Abdul Rahman University College, Malaysia  
Gan Boon Teong, Chong Hwa Independent High School, Kuala Lumpur, Malaysia  
Halmi Bin Daud, Sek. Men. Kebangsaan Malim Nawar, Perak, Malaysia |
# TUESDAY, 22 OCTOBER 2013

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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| 9.30 –10.15am | **Keynote Address 3**  
*The Business of Borderless Education.*  
by Professor Dato Dr Ansary Ahmed  
President  
Asia-e University |
<p>| 10.15 – 10.45am | <strong>TEA BREAK</strong> |
| 10.45 – 11.10am | <strong>Parallel Sessions</strong> |
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| A3-1          | B3-1 | C3-1 | C3-2 |
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| 11.10 – 11.35am | <strong>Parallel Sessions</strong> |
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| Engagement of Digital Natives in the development of learning content for Open Educational Resources | Innovating and Transforming University Teaching through the Scholarship of Teaching and Learning | Faster Improvement Through Task-Based Learning | Understanding Student Approaches to Learning among TARC students |
| Mais Fatayer, University of Western Sydney, Australia | Gavin Sanderson, University of South Australia, Australia | Vivien Wee and Emmy Jong, Sunway College Johor Bahru, Malaysia | Teoh Hee Chong and Yap Teng Teng, University Putra Malaysia &amp; Tunku Abdul Rahman University College, Malaysia |
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*Multi-faceted Evidence of Student Learning: Experience sharing from Hong Kong Baptist University*

By Dr Eva Wong
Director of Centre for Holistic Teaching and Learning
Hong Kong Baptist University, Hong Kong

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**REFRESHMENT**

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**Disclaimer**
TAR University College reserves the right to amend or change the programme, venue or speaker as it deems necessary without prior notice.
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PLENARY PAPER

Distributed Approaches for Institutional Curriculum Redesign at Birmingham City University

Stuart Brand
Centre for Enhancement of Learning and Teaching
Birmingham City University, UK
stuart.brand@bcu.ac.uk

Abstract

This paper describes the work of an English university undertaking systematic redesign of its academic provision. Central to the paper are the concepts of devolved responsibility for the processes that underpin programme design and the features of providing higher education within a vocational context. This is considered in the context of how senior level management may initiate change and opportunities emergent from such devolution of responsibility.

Key words: curriculum design, institutional approaches

Introduction

Birmingham City University is a ‘Post-1992’ university of 24,000 students of whom approximately 3,500 are postgraduates. It has a strong commitment to widening participation in higher education and has a focus on vocational education. Between 2009 and 2012 the university undertook a series of systematic redesign initiatives impacting on all of its academic provision.

This work, entitled Redesign of the Learning Experience (RoLEx), commenced with consideration of all undergraduate programmes in time for delivery in 2009/2010 and has been underpinned by the University Learning and Teaching Strategy (2007), which itself had been developed through extensive discussion across the university. The Strategy identified seven goals:

1. Facilitate a smooth transition to and through Birmingham City University for all students.
2. Gain a high level of student engagement with the learning process
3. Offer flexible approaches to learning
4. Meet the needs of a diverse student group
5. Develop highly employable students who are aware of their responsibilities to their profession and to society
6. Develop and support staff to achieve high academic and professional standards in learning and teaching and recognise excellence
7. Provide the most appropriate and effective learning environment

The RoLEx initiative was a starting point for what I hope to show is a series of moves towards development of a greater sense of learning community and of local ownership of academic development. This has grown from what were described originally as seven golden principles upon which such redesign work should be based:

- Enhanced consultation with students
- Enhanced consultation with employers
- Courses which are more attractive to potential students and employers
- Reduced assessment load and marking load
- Removed duplication and reduce complexity
- Achieved a positive effect on working lives of staff

Of the seven principles listed above perhaps the one that academic staff found least convincing was the last, concerning improvement in staff working lives. This was interesting: the University was undergoing significant
change following the appointment of a new senior management team and academic staff may have perceived the RoLEx work as yet more top-down instruction to be complied with, rather than as an opportunity to build a better experience for staff and students alike.

It was then, in our view, important to seek a more distributed model for the provision of staff development to support activity likely to improve students’ learning outcomes. We proposed this originally in a discussion of a series of initiatives aimed at such distributed approaches in one of our faculties (Bartholomew et al, 2009). We had taken action there to offer incentives at a variety of levels: staff could apply for small amounts of funding for curriculum innovations, such as the development of new learning resources in their own areas; module or programme teams could attend bespoke Module Makeover Workshops in which design and regulatory issues could be readily addressed; finally up to ten staff could take the more substantial step of applying to become Teaching Fellows with membership of a faculty wide Task Group and a formal commitment to spend 40% of their time on project development and support for faculty-wide developments. Some four years later we continue to argue for the distribution of responsibility for such design work to faculties and in particular to programme teams, with facilitation rather than direction from the centre of the University. We also contend that local ownership of these processes better serves the enhancement of our diverse academic provision.

Our desire to continue to distribute responsibility for programme design activity to programme level emerged mainly0 from the institutional learning that occurred as part of that first iteration of RoLEx, that which considered the University’s undergraduate provision undertaken during the 2008-2009 academic year. It would be timely to consider how this first iteration arose from two key decisions taken at the University’s Senate during 2007-2008:

- Approval of the new Birmingham City University Learning and Teaching Strategy aligned to the new Vision and Corporate Plan – November 2007.
- Decision to change the module framework for undergraduate programmes from a 12 credit module to 15 credit (or multiples thereof) module framework – February 2008.

The opportunities afforded by these decisions led us to seek to redesign our programmes to facilitate:

- more flexible approaches to learning;
- greater adaptability (agility) of programmes;
- effective engagement with employers across our provision;
- some elimination of duplication of modules.

Following that first iteration, a group comprising internal and external members evaluated the project and reported back to the University’s Senate in July 2009. One of the recommendations in the evaluation report stated:

‘In future iterations of programme redesign, avoid being caught up in a hierarchical structure where the people involved are, or feel, micromanaged due to rules and regulations surrounding the process of change.’

As part of a response to that recommendation, the University took a decision to devolve further the responsibility for coordinating the subsequent redesign of postgraduate provision from central departments to individual faculties. It was thought that this approach to facilitating redesign activity would lead to:

- Faculties coordinating better the rejuvenation of their portfolios to meet the needs of their own strategic plans.
- Staff tasked with reviewing proposals for redesigned programmes to remain institutionally proximal to those undertaking the redesign, allowing for enhanced channels of communication and faster iteration of redesign proposals.
- Workload associated with coordinating the review of postgraduate programmes to be devolved to Associate Deans (and other staff) within the faculties, allowing for efficiencies to emerge from parallel working.

In this second iteration of RoLEx there was therefore, in response to this initial evaluation, an attempt to achieve a greater degree of local ownership at programme team level by devolving responsibility for the facilitation of
the process from central units such as the University’s Centre for the Enhancement of Learning and Teaching and the Academic Registry to individual faculties.

Part of the motivation for this devolving of responsibility arose from our view that it was and remains crucial to build upon engagement with students and employers in the process of design. Evaluation of RoLEx 1 had suggested that, whilst important first steps had been taken in this regard, further significant culture change would be needed to secure more influential and productive stakeholder engagement.

Starting in 2009 we have also carried out a review of the ‘lived experience’ of curriculum design and as part of that work (Bartholomew, 2009) we asked academic staff how they elicited stakeholder engagement in their curriculum design processes; a strong message that came back was that such engagement was mainly facilitated through existing relationships rather than being facilitated through any formal mechanism. Such relationships can only be better served when more of the processes related to curriculum design are conducted by the programme teams themselves. Indeed effective dialogue between programme teams and their students as a feature of curriculum design processes could be argued to be a pre-requisite of student emancipation in the HE experience (Fraser & Bosanquet, 2006), a particularly relevant concept in provision for students engaged in a wide variety of work contexts. Further discussion of the potential benefits to be secured for student learning from their engagement in curriculum design can be found in the work of Bovill et al (2009).

Although the notions of stakeholder engagement in curriculum design as laid out above are laudable, it is not always clear that stakeholders necessarily aspire to be engaged or whether indeed they frame the concept of engagement in ways we can predict or hope. This issue is of considerable importance if we are to develop a greater sense of learning community across the University; for such a development it would be necessary, for example, for students to see themselves as centrally involved in the construction of their own learning experience, rather than merely recipients of it. As we have begun to tackle this issue we have drawn upon and adapted the Ladder of Engagement model as described by Rudd et al (2006). Our adaptation (created to support an institution-wide curriculum design project) is shown below as figure 1:

<table>
<thead>
<tr>
<th>Level of engagement</th>
<th>Notify</th>
<th>Inform</th>
<th>Consult</th>
<th>Involve</th>
<th>Collaborate</th>
<th>Empower</th>
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</thead>
<tbody>
<tr>
<td>Stakeholders may encounter untargeted project publicity</td>
<td>Stakeholders are regularly and reliably informed, made aware of their rights and ways of participating in the project</td>
<td>Project staff obtain views of stakeholders. Stakeholders receive full feedback on decisions taken</td>
<td>Project staff work with stakeholders throughout decision making process to ensure views are understood and taken into account</td>
<td>All aspects of decision making processes are undertaken in partnership with stakeholders</td>
<td>Stakeholders set agendas for change. Self-organisation and responsibility over management is held by stakeholders</td>
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<tr>
<td>Information made available</td>
<td>Stakeholders informed</td>
<td>Stakeholder consulted</td>
<td>Stakeholder input</td>
<td>Stakeholder shaped</td>
<td>Stakeholder owned</td>
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<tr>
<td>Stakeholder roles</td>
<td>Engagement tools</td>
<td>Anticipated effect</td>
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<tr>
<td>Stakeholders as passive recipients of information without context.</td>
<td>Stakeholders as passive recipients of broadly contextualised information</td>
<td>Potential for peripheral general awareness</td>
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<tr>
<td>Dialogue with project staff is not expected</td>
<td>Dialogue with project staff is implicitly welcomed but not explicitly invited</td>
<td>Potential for informed, contextualised awareness</td>
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<tr>
<td>Stakeholders as project team members</td>
<td>Designated consultation space/time in meetings</td>
<td>Confirmed widespread contextualised awareness</td>
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<td>Stakeholders as collaborators</td>
<td>Feedback/right of reply strategies</td>
<td>Emergence of reaction data</td>
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<tr>
<td>Stakeholders as respondents</td>
<td>Some dialogue with project staff is expected</td>
<td>Emergent reaction data is not framed exclusively by project staff</td>
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<td>Stakeholder appointment on POG</td>
<td>Stakeholder managed programmes</td>
<td>Agendas emerge only from collaborative activity with stakeholders</td>
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<tr>
<td>Stakeholder shaped policy making</td>
<td>Stakeholder managed consultation activities and tools development</td>
<td>New mechanisms are established which are stakeholder owned</td>
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<td>Stakeholder interest/action groups</td>
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<td>Project is self-sustainable with no expectation of project team intervention</td>
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<td>Stakeholder managers</td>
<td>Stakeholder managed programmes</td>
<td>Stakeholder managed consultation activities and tools development</td>
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<tr>
<td>Stakeholder ‘ownership’ of resources, events, policies and learning</td>
<td>Stakeholder managed consultation activities and tools development</td>
<td>Stakeholder managed programmes</td>
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Fig. 1: Stakeholder Engagement Model

As can be seen, this representation offers our view that very little ‘engagement’ occurs below the ‘Involve’ level and only at the ‘Collaborate’ level do stakeholders begin to take true ownership of the agenda.
Many of our postgraduate students are characterised by having already developed a high level of professional identity and a considerable amount of specialist domain knowledge and have undertaken a good deal of experiential learning as they have applied their undergraduate knowledge with ever-increasing expertise within their own varied professional context. Within this environment, the role of the academic (teacher) becomes contested; the traditional role of ‘subject expert’ becomes disputable and is necessarily supplanted by an academic role of ‘facilitator’ / ‘guide’ / ‘discussant’. With the experiences of students themselves representing the greatest source of information available to what might be called a staff-student learning collaborative, finding models of engagement which help to optimise our academic practice becomes all the more important.

As an institution, we have begun to share our model with stakeholder groups as a way of trying to communicate the step-change in activity that is required for real progress on the engagement agenda to be made. The University’s Director of Learning and Teaching has, within our university, been prominent in trying to distribute more fully responsibility for curriculum design processes to those who have the most vested interests.

We have sought to distribute responsibility for the administration of mechanisms that support programme design to individual faculties / schools and to empower those who study our programmes to input more fully into those aspects of curriculum design that have the most profound effect on their learning.

Reflection on this approach by the Director of Learning and Teaching is offered below and later in the chapter an Associate Dean who has been tasked with facilitating these processes within his own faculty gives a parallel account.

**Observations, in 2010, from the Director of Learning and Teaching:**

The need to generate appetites for the design process was central to our aims for RoLEx 1 in 2008-2009. The metaphor of ‘appetite development’ has proved useful to us in our internal communications and is offered here to illustrate the philosophy we are trying to cultivate at our institution. If we consider programme design in terms of development of a high quality dining experience, then appetites for student engagement in co-creative activity, for engagement with employers and for evaluation driven enhancement would not emerge to any great extent from some kind of top down fixed menu diet of imperatives, rules and prohibitions. Instead programme teams need enthusiastically to decide the menu, identify the ingredients and then take over the kitchen. External evaluation RoLEx 1 in 2009 suggested that (metaphorically) we had emergent enthusiasm for cosmopolitan and innovative cuisine but that a greater sense of ownership of the menu by all stakeholders would be needed if a Michelin Star was to be achieved!

With this in mind, positive steps were taken with RoLEx 2 to generate a greater sense of local ownership. Faculties, rather than the university, have set the agenda for timescale and areas of academic provision to be addressed and have been less hindered by central directives. This, of course begs the question as to the role of the central educational development unit (CELT). Crucially, we have had to steer away from directive approaches from the centre into another sort of facilitation. It should be noted that the desire for central direction has not always been an outward “push” from the centre, but often just as much in response to a “pull” from those in faculties cultured into a compliant approach. Indeed the culture of compliance itself has often been used as a justification for sustaining the status quo and resiling from change. Possibly this compliance was present in students in RoLEx 1 too: we had encountered very limited expectations in parts of our undergraduate student population, observing passive receipt of design outcomes rather than active participation in their generation. As can be seen from the engagement model offered above, fundamental to catalysing engagement is to help stakeholders take on the more active roles as described in the right-most columns of the table.

Facilitation from CELT has, to continue the analogy, the style of showcasing ingredients or preparation techniques, of explaining some possibilities for culinary combination, but not of prohibiting new dishes or cooking methods. Crucially it should also encourage a greater range of participants at the preparation stage: for example students are not merely to consume the meal but to inform and be involved in its preparation. CELT has therefore developed a number of initiatives aimed at driving student engagement. These comprise: real partnership for academic development with our Students’ Union (SU), running focus groups with postgraduate students in one faculty and the joint development with the SU of a Student Academic Partners Scheme (SAPS).

SAPS aims to integrate students into the teaching and pedagogic research communities of faculties as a way to develop collaboration between students and staff, generating a sense of ownership and pride in the institution.
and its programmes. The scheme provides students and staff with a direct opportunity to work collaboratively to strengthen learning and teaching at the University for the benefit of all.

In December 2009, the University in partnership with the SU, invited collaborative student and staff teams to identify educational development projects and bid for funding. SAPS then offered an opportunity for paid employment (for up to 175 hours of work) to enable these students to work in equal partnership with staff to strengthen the learning and teaching development of the University.

This provided students with the opportunity to guide the development of projects in an academic environment whilst also gaining real employment experience.

Over 35 project proposals were submitted for consideration of which 24 projects were funded. The projects represented a wide range of different activities such as:

- Research into the delivery of personal development planning on a suite of Master’s programmes in the School of Media;
- The evaluation of an online peer assessment tool on a Visual Communications programme within the Faculty of Technology, Engineering and the Environment
- The review of programme evaluations and development of initiatives for improving the learning experience on a Nursing programme in the Faculty of Health
- The facilitation of a screen printing service within Birmingham Institute of Art and Design which enables students to create, print and sell their own screen printed books

As these projects develop we continue to work with the student and staff partners in order to evaluate the impact of collaborative working for both the individuals involved and the wider learning experience. The scheme is now attracting national recognition and the university has already committed to further iterations of the scheme as the benefits become manifest.

Our overarching approach then is to move from regrettably fashionable notions of consumerism in higher education, with all the passivity that entails, to a much more active participation in design, delivery, engagement and evaluation of more dynamic curricula.

As mentioned briefly above, in May 2009 we conducted a review of the ‘lived experience’ of curriculum design from the point of view of academic staff. As part of that review we asked them to reflect on the level to which they engaged their stakeholders in the business of curriculum design. Although a good deal of engagement was reported, it was nonetheless limited in scope and depth. Since then the University has developed new mechanisms for the approval of academic programmes. These mechanisms require programme teams to offer evidence of wide and deep consultation with stakeholders, including employers and students, as part of the documentation they offer to those conferring approval.

It is important to document that the University did not just impose new mechanisms for the approval of academic programmes upon staff but instead used the principles for stakeholder engagement outlined in the model described in this chapter to conduct robust collaborations with staff to co-develop the new mechanisms. It clearly would have been untenable to espouse the importance of engagement with stakeholders while creating mechanisms that took no heed of the needs of those to be most affected by the changes brought about.

One of the outcomes of our engagement with academic staff was a realisation of the necessity to facilitate their engagement with employers and students more fully without increasing their workload to an unmanageable level. We are currently piloting some technology based solutions that enable staff to conduct robust stakeholder engagement activities but without the need to author significant amounts of paperwork.

The approach we have chosen to take is to develop an infrastructure that can support the collection, archiving and sharing of multimedia artefacts. The University has invested in mobile video capture and sharing technologies such as MP3 recorders, Flip video cameras and Voxur video capture units. Not only does the collection and sharing of stakeholder views via multimedia negate the need for the authoring of additional paperwork, but also the direct sharing of multimedia data ensures that stakeholder voices are represented as authentically as possible while minimising workload for academic teams.

The nature of our postgraduate provision means that the ability to deploy these technologies into employer premises allows us to collect much wider and richer data from those with a vested interest in our postgraduate
programmes and enables us to be more responsive to their needs. It is therefore no surprise to us that the first two programme teams to put themselves forward to use this technology are doing so to support the development of new Masters degrees.

For universities with a vocational focus, engaging with employers is necessarily conflated with our engagement with postgraduate students; as an educator for the professions our postgraduate market is located within such places as companies, hospitals and other areas of professional practice.

Ordinarily contact with postgraduate students may be too sporadic to facilitate truly effective engagement and imaginative solutions such as the multimedia technology we are piloting have a lot of potential to facilitate higher levels of engagement by postgraduate students (and representatives of employers and professional groups) in curriculum design.

We return now to the subject of devolving the responsibility for facilitating the design and approval of programmes away from the centre and towards individual faculties – that institutional decision is not without risk. This is because with that devolution of process goes some acceptance that the centre will be unable to exercise as much control over aspects of it. Ceding control though, is not the same as losing influence – through enacting the principles laid out in our stakeholder model we can, to return to the culinary metaphor, be a most active member of the kitchen collaborative.

By way of reporting fully on our approaches to facilitating postgraduate programme design with a distributed infrastructure, we asked the Associate Dean (who had responsibility for the devolved processes) from one of our faculties to share their reflections on our approaches to facilitating curriculum redesign.

**Observations from an Associate Dean:**

Utilising the experiences from the first RoLEx process, which were very positive, the Faculty Board responsible for the delivery of the second iteration of RoLEx decided to begin by taking a step back from the process and reflecting on the fundamental motivation for the redesign activity. This has provided a clear rationale which underpins the process and which has been used as a communication and orientation device for all involved: ‘Why are we doing this and how do we set about achieving our ambitions?’ This clear understanding and shared intention means that programme developments, consistent with discipline needs, can be allowed and can be measured against principles which deliver the answer to the question posed and allow for inflection and developments characteristic of disciplines.

Further benefits perceived (from the undergraduate experience) were the advantages derived from utilising a ‘process’ as opposed to an ‘event’ to redesign the programmes. The fundamental problem and shortcoming of an event based approach (which provides essentially a single opportunity) is that progress and evolution of the programme is minimal and additionally opportunity for safe experimentation is stifled in preference to stolid certainty and minimal evolution.

Consequently the Faculty has argued for a two-year approach to postgraduate RoLEx (undergraduate was one year in length) in order to maximise the potential of a prolonged dialogue with stakeholders.

The ambition is that diversions, distractions and experiments that explore the interest of stakeholders and the disciplines will create more appropriate and profitable design solutions in which staff have a significant pride (in delivering) and provide high levels of student satisfaction as well as employment necessities.

Effective communications and securing buy-in by staff is seen as being critical in order that they are seen as being able to have the security provided by the principles but the opportunity to own and develop a programme which has a specific, distinct and focused interpretation of the discipline field which avoids developments at the lowest common denominator or mere adoption of benchmark expectations.

**Concluding remarks:**

The account above offers some insight into the sense of ownership of the curriculum design process that has been constructed in areas of our University and it is through such ownership that our aspirations of being able to offer highly dynamic curricula, responsive to the needs of employers and students alike will be realised. This
dynamism, though inarguably important in undergraduate education is crucial for postgraduate education where external drivers for changes to curriculum can evolve very quickly indeed.

Interestingly, in work conducted in September 2010, one of the authors of this chapter collaborated with colleagues from four other British Universities to develop a map of all of the stakeholders in the curriculum design process and the interconnected ways in which they work. The resultant map demonstrated that through overlapping activity streams relating to programme approval, policy and regulation, strategic planning, staff development, programme information production, programme management, institutional culture, version control and software infrastructure; curriculum design is already functionally distributed. Distribution of authority to match this (already) distributed responsibility would seem to be a sensible aim.

Devolution of the RoLEx activity is just one step on a journey towards stakeholder ownership in curriculum design and delivery. Although there is still much to do, we feel our structured approach to developing a culture of meaningful stakeholder engagement and better ownership of the design process by all those with a vested interest will lead to opportunities for better design practice and thus yield better programmes for students. Furthermore we feel this approach will be particularly beneficial for the evolution of our postgraduate provision as it offers a model for optimised stakeholder, particularly employer, engagement.

References:


Dialogic Research Approach in Cross Cultural Project Management: A Way to Value Voices from Cross Culture Partners Towards The Construction of A Design Based Framework

Swee Chin, Ng
Tunku Abdul Rahman University College
ngsc@mail.tarc.edu.my

S. Chee, Choy
Tunku Abdul Rahman University College
choysc@mail.tarc.edu.my

Pou San, Oo
Tunku Abdul Rahman University College
oops@mail.tarc.edu.my

Fui Chung, Chin
Tunku Abdul Rahman University College
chinfc@mail.tarc.edu.my

Lee Wah, Teh
Tunku Abdul Rahman University College
tehlw@mail.tarc.edu.my

Abstract

There is limited literature on the actual practice of carrying out research in a diverse global community which includes both developed and developing countries. Most of the available research is limited to cases among western countries. Hence this paper is aimed at highlighting the experiences of the Science Education in Diversity (SED) team during its three-year research collaboration. The purpose of this collaborative project between the UK, the Netherlands, Turkey, Lebanon, India and Malaysia was twofold. First it was to understand how each partner country addresses the issue of diversity, and secondly how to use the results obtained from the project to address the new cultural diversity of students in order to more effectively teach science. This project specifically highlights using the dialogic approach to teaching science by valuing the voices of the locals in both developed and developing countries. The paper will identify the challenges faced by the partner countries as they carried out the project as well as the strengths of such a multi-partner, global research setup.

Keywords: Science education, dialogic approach, multi-partner research

Introduction – the Science Education for Diversity Project

The SED project follows from the proposition that in today’s societies the knowledge of science and scientific ways of thinking are essential to participation in democratic decision making, especially with issues involving science. The decreasing engagement of many young people with science subjects in school is evident in the falling recruitment to study science and technology subjects at the degree level in Europe (Griethuijsen et al., 2011). This decline in enrolment is a problem for the health of a knowledge economy as well as for democratic participation in scientific debates. Prior research has revealed that the reasons why young people are drawn to engagement with science or not drawn to science are complex and cultural in nature (Haste, 2004a; Haste, Muldoon, Hogan & Brosnan, 2008). There is a strong effect for gender, which does not mean that girls are not attracted to science but they take a different approach to science than the boys. A recent report to Nuffield on science education in Europe (Osborne & Dillon, 2008) as well as the ROSE (Relevance of Science Education) report (Sjoberg & Schreiner, 2005) argue that the issues behind the decrease in those opting to study science is the diversity of life-styles, religions and youth cultures. These issues have not been well addressed by
the somewhat limited approach to science education that dominates throughout Europe. These reports then put the responsibility for reviving science in Europe largely on the way to which science is taught and disseminated.

This project was aimed at finding ways to improve science education in order to respond more effectively to the new student diversity, especially among students in the European classrooms who are more diverse as a result of immigration. Lebanon, India, Turkey and Malaysia, where there is a rich diversity of cultures and yet science remains as a popular career choice, were invited to join in the study with the United Kingdom (UK) and the Netherlands in this project. Students’ attitudes towards science and their conceptual interpretations of science were compared and analysed across the participating countries. The study found some clues to how the learning of science by students with diverse backgrounds can be carried out effectively so that there will be more of them choosing STEM related careers in the future.

Without doubt there were many challenges to carrying out science education research in the 21st century where situations are cross cultural and international. Often in such studies the voices of developing countries are muted in favour of the western perspective. This paper will highlight the challenges of carrying out research in the Science Education in Diversity (SED) project which was funded by the European Union Seventh Framework Programme (FP7). Our aim to allow the voices of members to be equally heard throughout the project proved challenging. We will address the problems faced during the research process, from the obvious language differences among member countries to the difficulties of mutually understanding the cultures of each member. The dialogic approach that was used to ensure that all member countries were heard and their feedback and perspectives valued will also be discussed.

**A dialogic approach to carrying out research among culturally diverse countries**

The dialogic approach was used in this project to demonstrate the rigour of qualitative research and the establishment of trustworthiness and authenticity of finding. In a collaborative study, such as the SED, where both the research and its participants are from diverse nationalities and cultural backgrounds, the ability to make the role of the various researchers more visible to each other in the whole research would be important to ensure success. The challenges faced in a collaborative research such as ours were allowing the project to be emergent, evolving, and iterative, and for the data analysis to be individualised rather than collaboratively constructed. Having an on-going conversation among the partner countries proved to be more challenging than was initially anticipated. In each country, the practice of science education is embedded in a unique socio-cultural system that is determined by its norms, values, and epistemologies. Examples include Malaysia, Lebanon and India where there are issues of cultural diversity; yet, science remains attractive to a large number of young people. Simply copying the science education practices in these countries to be used in other countries would not be appropriate. There is a need for an understanding of the unique cultures and socio-economic trends underlying each country and the adaption of approaches that would suit individual needs. The dialogic approach proved to be effective in reaching these goals as the individual countries were able to contribute to the on-going conversation, ideas, and perspectives that were unique and relevant to them. Although challenging at the start, this approach gave rise to a renewed understanding of the uniqueness of culture and challenges to science education in each country.

In order to effectively address the problems each partner country experienced during the project, it is important at this point to provide a comprehensive explanation of the dialogic approach. The dialogic approach that we used in this project is rooted in the work of the philosopher Bakhtin. As a literary critic and philosopher of language, Bakhtin’s work was aimed at understanding the human experience which he theorised as the relationship between the everyday material and social world and how they becomes reflected in text. The resulting dialogic framework is that the verbal expressing of human life is the open-ended dialogue (Bakhtin, 1984). This project uses open-ended dialogue among the partner countries so that the various culturally saturated viewpoints ‘speak’ to each other. This framework allows for the expression of ideas as well as accounting for the culturally specific forms of knowing and learning science. This also allowed for the meaningful and significant consideration of the viewpoints of the partner countries. In general methodological terms, this research aims to demonstrate the rigor of qualitative research where it is important to establish the trustworthiness and authenticity of findings (Paulus, Woodside & Ziegler, 2008). In a project where the participants are from diverse cultures and nationalities, the ability to make the roles of the various researchers more visible to each other would be important to ensure success of the research. In this project we have taken the stance that each partner is having a conversation among themselves as well as with researchers from other partner countries.
In the course of the project each of the partners had to meet and overcome challenges. We set up and used certain strategies that could be seen as strengths to face the challenges, namely voice and heteroglossia. In this project, the notion of dialogue presupposes two or more voices speaking to each other. This is central to a dialogic perspective. Hence, voice here refers to the capability of a group to contribute meaningfully from its local perspective to a particular dialogue. From the dialogues, which Baktin (1984) defined as shared inquiry giving rise to further questions, we were very cognizant of the cultural and sociological differences between the partners. In view of this, we asked each partner country to describe the contexts of their dialogue to allow for better understanding and generate further questions. This was so that the cultural perspective of each partner is well represented and can be responded to as necessary, which is essential in a dialogic research project such as ours.

While it was important to be responsive to the voice of each partner, we also needed to acknowledge the differences between the voices and learn from them which is central to the idea of heteroglossia (“different-speech-ness” in Russian). This is essential for addressing the issue of diversity within science education. Heteroglossia allowed us to understand how various voices can co-exist and interact in a given dialogue. We were aware that science tended to be monologic. This self-image remains hard to shift and is continuously reinforced by science education itself (Weigerif et al, 2013). We were careful that there was to be no authoritative voice among the partners that forced us to accept or reject ideas, so that we could effectively engage in dialogue with each other.

**Challenges of working with the partners**

Science education in each of the partner countries had its own differences and uniquenesses. This was most evident during the project when we found that the research community in each country was very different. For instance, in the UK and the Netherlands there were vibrant science education research communities throughout the two countries. However, in the non-western countries, science education research was still developing. In India there were very few individuals involved in science education research compared to its population. In Lebanon, there were very few researchers, and those who were actively engaged in science education research were from other countries publishing in different languages. This made it difficult for Lebanon to have an established research community. In Turkey and Malaysia, there is an increasing interest and activity in science education research, but it is still relatively new.

Being responsive to the voices from each country proved challenging as it consisted of understanding the terminologies and language used by each partner. This included the meanings of the terminologies used as well as the preconceptions of each member who were from different cultural backgrounds. We were aware that both selves and culture are made up of a multiplicity of positions from which dialogues can be established (Weigerif et al, 2013). This perspective allowed us to break down fixed views of culture in favour of cultural differences as fluid. An example of needing to be responsive to the voices was experienced by the Malaysian team. During the interviews, it was found that some of the teachers, especially those from a rural school in the state of Perak, had difficulties with the question about the natural world: “In the community in which you teach, are you aware of examples of the ways of thinking about the natural world that would not be regarded as “scientific”?”. These teachers had difficulties answering the question as they were unsure of how to apply the question to their context.

The Malaysian team also felt they needed to be more accommodating to local needs in how they administered the questionnaires and made adjustments to the situations as the need arose. Therefore, precautions were taken to be more elaborate in their explanations to the students and teachers who participated in the project and to make adjustments as necessary during the data collection stage. In order to ensure that the data collected from the teachers and students were useful, certain terms used on the questionnaire and some of the question formats were explained. These precautions were taken in order to address questions voiced by the teachers and students. Similar precautions were taken by the researcher from the other partner countries as well. In Turkey the research team had to use localised examples on moral issues to help teachers answer the questionnaire. It must be mentioned, however, that researchers from the UK and the Netherlands, could not fully comprehend the need to make changes to or explain the questions.

Apart from problems with the context of the questions in the questionnaire, there were also problems with the use of English as the common language of communication among the partners. With the exception of the UK, English is not the first language in the other countries. There were inherent problems with the authentic expression of the ‘voices’ of each partner and a common understanding of the meanings of the words used in the communications. As pointed out by Vygotsky (1986), the development of human intellect and language is not
parallel; hence, the ability of individuals to truly express their thoughts lies solely with their ability to express themselves in the language used. In order to communicate well in a language, individuals must be immersed in the culture and acquire a certain appreciation of that culture before being truly comfortable in that language. This posed a challenge for the partners in terms of being truly responsive to each other’s voices. Martin and Siry (2011) noted that the dominance of the English language in the world of research has limited the contributions of those researchers who are not proficient in the language. In research where the dominant language is English only researchers whose native language is English can authentically express their particular voices.

These challenges were quick to surface during the project at meetings and in communications between the partners. In order to ensure that all partners were operating as a team in which each member was being heard and respected, we aimed at learning from each other through differences among the voices (van Eijck et al, 2012). The following sections describe the steps we took to manage the challenges we faced.

Selecting research aims

One of the challenges was to ensure that the outcomes of the project were valuable to all the partner countries. The initial aim to better understand how European countries could improve science education would reduce the role of developing countries as mere providers of data without benefiting from the outcome of the project. Added to this the data collected from the developing countries would run the risk of being interpreted from the perspective of a developed country. This would result in a monologic approach to the research rather than nurturing heteroglossia among the partners. With this in mind, we made sure that the aims of the project were of mutual interest to the participating countries.

A second aim for the project at this point was to learn how developing countries can anticipate the declining interest in science once they further develop. A third aim was to expand the science education literature on diversity issues to non-western countries. Hence with these aims in place we were able to be responsive to the voices of all partner countries as well as nurture heteroglossia.

Project management

In order to properly manage the project, we needed to be constantly aware that we were working with a culturally diverse group of people with different management styles. First a project management board was set up in which each of the partners had a representative. The role of the board was to strategically manage the project. A major task of this board, among others, was to develop and design each stage of the project. It was also tasked with reviewing the progress and output of the project, making assessments of quality as well as fitness for purpose and potential impact of outputs produced. From time to time it also reviewed the content of the project and identified changes needed for the project content, structure and responsibilities.

Next we needed to ensure that there was shared ownership of the project among the partners. Therefore each partner was given responsibility for a part of the project in the form of Work Packages. These packages were assigned as follows: project management (the UK); exploration – documentary analysis (India); exploration – case studies (the Netherlands), theoretical frameworks (the UK), intervention/evaluation/refinement (Lebanon), dissemination / valorisation (Turkey). While Malaysia was not responsible for any of the Work Packages, they were none the less required to give feedback, gather data and write reports like the other partners.

Finally we aimed for each partner country to take turns hosting project management meetings. This would allow the research team to be exposed to the local cultures of each partner as well as develop some insights into the culture of each country. During each of the meetings, there was real dialogue occurring where all the researchers ‘interanimated’ each other’s understanding of how the project was progressing. However, this aim was only partly accomplished since the partner countries exceeded the number of project meetings. In addition to the project meetings, monthly teleconferences were held to ensure a continuous dialogue.

Local researchers and experts

In order to be responsive to the local voice, each partner country had local researchers playing an executive role in the research project. These local research groups were comprised of faculty members and graduate students who could work together in a dialogic and constructive manner. This manner of working with the locals proved successful. For instance, in Malaysia the local researchers could express their concerns about the questions on the questionnaire developed by the six partners. This provided a platform for the local voices to be heard.
Further to this, the interview questions were analysed by local researchers using an analysis protocol in order to take into consideration as much as possible the local context.

An expert advisory panel was also set up in each of the countries. This panel included stakeholders, policy-makers and educators. Working with such groups enhanced the dialogue in two ways. First, it allowed the local voices to be more powerful, as it was supported by the stakeholders and local experts in the field of science education and diversity. Second, it also allowed the sharing of research findings from the six partners with the local advisory groups. This arrangement provided rich feedback to the research teams. In order to further ensure that the findings were well communicated to the local research communities, papers were presented at local and international seminars and conferences.

Challenges with language

Since English was a second or foreign language to all but one of the partner countries, the challenge of decreased heteroglossia was dealt with in several ways. One of the first challenges was to design the questionnaire and interview protocols so that the voices of all countries could be heard. The use of English for the questionnaires could not be avoided as it was a common language that the researchers from each country spoke and understood. It was decided that the questionnaires would be translated into the local languages of each partner country. The translated questionnaires were again translated back to English by a different translator. This step was taken to ensure that the translation was accurate and precise. The process of translating a piece of work into one language and retranslating back to the original language can be daunting as pointed out by Regmi et al (2010). We carried this step out as precisely as possible; however, there were some terms used in the questionnaires that did not have a direct translation in the local language. Difficulties occurred in the translation from English to Dutch with the word of ‘science’. In Dutch the word for science is ‘wetenschap’ which has a broader meaning than science. A better translation for the word science would be ‘naturwetenschap’ which means natural science, but this word was unfamiliar to most ten year olds, the age group we were targeting. It became evident to us that we needed to allow these words to remain “as is” in order to maintain the differences between the local voices of each partner. The words that could not be directly translated allowed us to nurture heteroglossia by letting the differences in the local voices contribute to the data we obtain.

Another example of challenges with language was in India where there are more than twenty-two languages used locally. Each of these languages has millions of speakers and numerous schools have them as their medium of instruction. As it was impossible to translate the questionnaires into the local dialects, it was decided to use English as the medium for the whole research project. This move was justified as all official documents are written in English, and it is the language used in all official matters in India.

The manner in which questions were asked in the questionnaires and interviews also needed to be addressed from a cultural perspective. This was where piloting the questionnaires and interview protocols proved valuable. For instance, one of the questions asked, “Do you want to marry a scientist?”, did not elicit any response from the Indian students sampled. In previous researches, which were carried out in mainly western countries, this question proved to be highly effective in probing students’ orientation towards science and scientists. The reason for a lack of response from the Indian students was because many marriages in India were arranged by parents or significant caretakers. Therefore, speculating on whom you wish to marry is considered inappropriate. The question was subsequently changed to: “Do you want to be married to a scientist?”. This resulted in more Indian students providing an answer to the question. It would seem that piloting the questionnaire and interview protocols was essential for picking up students’ beliefs and perceptions in the local context which aided us in collecting richer and more meaningful data.

Discussions and conclusions

In the SED project two concepts were at the forefront of the challenges faced: being responsive to voice and nurturing heteroglossia. We took a dialogic perspective to carrying out our research in the 21st century in a diverse global community which included both developing and developed countries. In the challenge of being responsive to voice, we needed to promote dialogue among the different partners as well as among each researcher and their stakeholders in each country. In order to nurture heteroglossia each of the different voices in the partner countries needed to be heard and acknowledged.

In this project, several measures were taken to ensure our responsiveness to the voices of the partners and all participants. These measures are the principles which we followed while carrying out research in our culturally diverse global community. The principles were:

setting research aims which were of mutual interest to all partners in the research
• project management that resulted in shared ownership of the project by means of
  a. local team meetings
  b. representation in the management board of all partner countries
  c. distribution of work to all partners
• working with researchers and advisory groups who represented the local voice of each partner country
• using back translations and pilots where appropriate to counter any hegemony of English.

The project was completed in December, 2012. The timely completion of all the work packages is evidence that the collaboration of research from six very culturally different countries has worked well. The fact that several research papers have been produced from the results of the project shows the strength of the dialogic approach to carrying out research. The documentary analysis allowed the researchers to discover in greater detail differences in the nature of science education in each partner country. This knowledge was further enhanced by the numerous e-mails and multilateral exchanges between the partners, again evidence that the dialogic research approach works among culturally diverse partners.

The questionnaires and interviews that were developed by the partners enabled us to effectively study the differences in science education among the partner countries. Using multi-level analysis of the data from these instruments, substantial differences were found between countries. Further to this, it was agreed among the partners that the research instruments used in the study had to be sensitive to the cultural differences of each country on the issues of diversity in science education. The analysis of the data collected from 9000 students in the six countries will be presented in another paper. All the partners agreed that their voices were being acknowledged and responded to during the project.

The principles which were used in our dialogic research project were powerful in bringing cohesion to the partners. Although there were many hurdles that we had to overcome as a team, it provided a means of working together. The researchers also realized that due to the complexity in the backgrounds of our samples, the data collected could not be superficially analysed and interpreted. As such, the data was analysed with continuous input and interpretation from the partners. The development of the research instruments to collect the data during the exploration stage was a long and painstaking process so as to establish content and construct validity. It also took time to nurture feedback from all partner countries when developing the research instruments so that the differences among the partners could be highlighted to promote a continuous dialogue. Some of the ideas that were shared in the dialogue were lost in the final decisions, as some of the partners with a small research community were not quick enough to respond with ideas that were relevant to their local context. In addition, not all the partners were able to discuss ideas with their local advisory groups before responding, while some of the partners only responded when they were certain of their stand. This may appear to the other partners to be a lack of contribution; however, at the end, all the partners agreed that there was never an absence of dialogue during the project. On the contrary, our project turned out to be like a forum through which dialogue occurred in a real and synergistic way.

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References


Science Education for Diversity – the Malaysian Perspective

Swee Chin, Ng
Tunku Abdul Rahman University College
ngsc@mail.tarc.edu.my

S. Chee, Choy
Tunku Abdul Rahman University College
choysc@mail.tarc.edu.my

Pou San, Oo
Tunku Abdul Rahman University College
oops@mail.tarc.edu.my

Fui Chung, Chin
Tunku Abdul Rahman University College
chinfc@mail.tarc.edu.my

Lee Wah, Teh
Tunku Abdul Rahman University College
teiw@mail.tarc.edu.my

Abstract

Studies have shown that students’ interest towards science is affected by complex cultural and gender factors. It has also been found that this interest can be cultivated most effectively with students between the ages of nine and sixteen as their perceptions and attitudes are being formed. These studies have helped determine the cause of the decrease in interest towards learning science and science literacy, especially in classrooms where students are from diverse backgrounds. In order to further study how students’ attitudes may contribute to their interest in science, a project called ‘Science Education for Diversity’ was initiated under the Seventh Framework Programme (FP7) funded by the European Commission. A total of six partner countries were invited to participate. This paper will present the findings from Malaysia, one of the partner countries. It will discuss the results of quantitative data collected from 2,334 students of 16 schools and 110 teachers who participated in the study. The students are from diverse backgrounds, in terms of age, gender, ethnicity and religions. This paper will highlight findings on students’ attitudes towards science, their conceptual interpretations of science, environmental and ethical awareness, and reasons for career choices, with consideration of their diverse backgrounds. It will also present the findings on teacher attitudes, their goals and objectives toward science education and how they deal with diversity on their classrooms.

Keywords: Science education, perceptions, attitudes

Introduction

This paper will present the quantitative results of data collected from Malaysian students and teachers in a sub-study called Work Package 3 of the Science Education for Diversity (SED) project (see http://www.se4d.eu). This project is aimed at understanding how countries both within and outside Europe address issues of diversity in science education. It was undertaken by six countries: the United Kingdom (UK), the Netherlands, Turkey, Lebanon, India and Malaysia with funding from the European Union Seventh Framework Program (FP7).

The SED project followed the proposition that in most societies today, knowledge of science and scientific ways of thinking is essential for participation in the decision making process, especially in issues involving science. The decreasing engagement among young people with the sciences was evident from the low numbers of students studying science and technology at the degree level in Europe (Griethuijsen et al., 2011). In the near future this will become a problem for the health of the knowledge economy and the democratic participation in scientific discussions in many countries.
Prior research revealed that the reasons young people were not drawn to studying science were complex and cultural in nature (Haste, 2004; Haste, 2008). There was a strong effect for gender, where girls were attracted to science but took different approaches to it than the boys. A report by Nuffield on science education in Europe (Osborne & Dillon, 2008) as well as the ROSE (Relevance of Science Education) report (Sjøberg & Schreiner, 2005) noted the decrease in those opting to study science was the result of a diversity of lifestyles, religions and youth cultures which were insufficiently addressed by the limited approach to science education in Europe. These reports subsequently placed the responsibility for reviving science largely on the manner in which it was taught and disseminated which was also broadly congruent with recommendations in a report by the European Union Directorate General on Research, Science, Economy and Society (Rocard et al., 2007).

The aim of the SED project was to find ways to improve science education in order to respond more effectively to the new student diversity, especially in European classrooms, as a result of immigration. Lebanon, India, Turkey and Malaysia (where there is already a rich diversity of culture yet science remains a popular career choice) were invited to join with the United Kingdom and the Netherlands in this project. Students’ attitudes towards science and their conceptual interpretations of science were compared and analysed across the participating countries. It was also hoped that clues on how students from diverse backgrounds learned science might emerge so that the teaching of science could be carried out more effectively resulting in more students choosing Science, Technology, Engineering and Mathematics (STEM) related jobs in the future. Adding to this rich data were the teachers’ perspectives on how they handled diversity as well as their goals for teaching science.

Such research was of interest to Malaysia as there has been concerted efforts by the Ministry of Education (Ministry of Education Malaysia, 1994) and other non-governmental agencies since the 1990s (Ng et al., 2011) to carry out reforms in the science curriculum to meet the countries’ current and future demands for scientists and engineers. In anticipation of the coming shortage, the curriculum for primary and secondary schools was revised to emphasise the teaching and learning of science. This move was intended to increase student enrolment in the science programmes in local universities. Currently the curriculum for science in Malaysia is aimed at developing scientific knowledge and developing thinking skills in students that will help them in their daily lives. In primary school the focus is on the mastery of skills needed to study and understand the world, hence, process and manipulative skills are emphasised (Ghani et al., 2006). In secondary school emphasis is on decision making and problem solving in everyday life (Zakaria & Iksan, 2007) which requires process and manipulative skills. It was anticipated that changes in the science education curriculum would have an influence on the attitudes and perceptions of students towards science and learning science. Therefore, this study on the attitudes of Malaysian students towards science and their conceptual interpretations of it, together with teachers’ perceptions after the reforms over the past eighteen years could provide interesting insights. Further analysis on how students and teachers handle diversity in the classroom could also provide interesting findings.

**Attitudes and perceptions of Malaysian students**

**Definition of perceptions and attitudes**

Before a discussion on the attitudes of students towards science and learning science is presented, definitions of these terms are necessary. The term ‘perception’ may be taken to mean an awareness of a meaningful form of physical stimulation (Sainnet al, 1980) to being an awareness of an event (Kantor, 1975). Baund (2008) argued that perceptions come through the representation of something individuals have within themselves and form conclusions from the representations. According to Choy and Oo (2008), perceptions may be summarised into three points. First, perceptions are determined by an individual’s experience, intention and social needs. Second, the perceiver is actively perceiving and selecting information from the environment. Third, perceptions help individuals build a world view which enables them to make sense of the world around them and plan for the future. These perceptions will eventually form attitudes.

Attitudes which stems from perceptions are shaped by how an individual perceives (Lefton, 1997). According to Aizen (2005), attitude is a theoretical measure that must be inferred from some measurable responses. These responses come in three forms: the cognitive form, the affective form and the conative form. Cognitive responses are expressed as beliefs; affective responses are the feelings and evaluations towards something; while conative responses are the inclinations and intentions towards something. Sjøberg and Shreiner (2010) also found that the primacy of the affective dimension of science education, that is having positive attitudes towards science, is vital “to inculcate respect for and appreciation of science as part of our culture”. Therefore, attitudes which are long lasting patterns of feelings and perceptions may play a vital role in the learning of science by students.
Students’ attitudes toward science and learning science in Malaysia

Students’ attitudes towards science and learning science have been found to influence their perceptions of it. A study by Jenkins and Nelson (2005) found that many young people had already made up their minds on whether to pursue science or technology as a career before they reached the end of their secondary education. This usually occurred before they were fourteen or fifteen years old. Therefore, it is important to effectively teach science to students below the age of fourteen in order to instil positive attitudes and encourage the pursuit of science as a career. Barmby et al (2008) and Collins et al (2006) also found that students’ attitudes towards science seemed to change when they transitioned from primary to secondary school. There was often an erosion of their attitudes towards science as they grew older. Halpern et al (2007) found that gender only played a small part in individuals who were mid-range in their mathematics and science achievement. The same study also noted that a wide range of socio-cultural forces contribute to gender differences in mathematics and science achievement and ability. These include the effects of family, neighbourhood, peer and school influences; training and experience; and cultural practices. The researchers also found that early experiences, biological factors, educational policies, and cultural contexts affected the number of men and women who pursued advanced studies in mathematics and science. However, findings from the various studies did not seem evident in the Malaysian population.

Swetz et al(1983) in a study of 1,000 thirteen year olds found that although the Malaysian population represented traditional societies which have a tendency to be male dominated, learning science in schools was not found to be gender biased. Both males and females performed just as well in mathematics. The study attributes the results obtained to two factors: first, women in Malaysia have historically been given more social freedom and societal responsibility, and second, the government’s efforts to give females assured access to education. In a more recent study, Yoong and Ayob (2006) found that Malaysian females tend to perform significantly better than male students and more female students enter tertiary institutions of higher learning in all subject areas. A study on learning mathematics among 5,314 students in Form 2 (8th Grade) found that girls significantly outperformed male students and more female students enter tertiary institutions of higher learning in all subject areas. A study on learning mathematics among 5,314 students in Form 2 (8th Grade) found that girls significantly outperformed boys in mathematics (Awang& Ismail, 2006) which was attributed to more time being spent by the girls to practise mathematics at home. This trend was in marked contrast to many nations. The same may be said of Malaysian females becoming more adept in using the computer as a research and learning tool. Coupled with this, there was a smaller gap between the number of female and male computer users as well (Wong et al, 2005). The latest TIMSS 2008 report showed that female students in Malaysia were performing better than male students in science achievement scores (Martin et al, 2008), although there was a decrease in the scores for females from 2003. A study on 214 Malaysian secondary students found that attitudes towards science improved when what had been learned in the classroom could be bridged to the outside world (Zainet al, 2010). The occurrence of such bridging influenced their future participation in science. Another study of 337 Malaysian secondary school students found that they generally had positive attitudes towards learning science, and those who perceived science as interesting would be more keen to choose a career that was science related (Balakrishnan, 1998). The same study also found that Malaysian males in general had better attitudes towards science than females, but the overall results showed that there was a tendency for both genders to choose non-science related careers. De Alwis (2005) found that there was an overall positive attitude towards science, but male students in general were less positive about learning it in English than female students. Most of the students in the same study recognised that it was important to learn science in English for better job prospects. Tai et al (2006) found that young adolescents who were encouraged to have a career in science were more likely to graduate with a science degree. In another study by Lau et al (2005), students were also found to have positive attitudes towards learning mathematics in English although many of them perceived they were not ready to learn mathematics using English. However, the results of these studies must be taken with caution when considering the findings of Ong and Ruthven (2010), that the effect of positive attitudes contributing to higher achievement in science was not as evident among students that were low achievers, even when some of the lower achievers had positive attitudes towards science. Beauchamp and Parkinson (2008) further noted that there has been a steady decline in students’ attitudes towards school science over the past twenty years.

Teachers’ attitudes and perceptions of science and teaching science

Numerous studies have shown that teachers’ perceptions and attitudes influence the way they teach and how they interact with students (Ho et al, 2001 and Ong& Ruthven, 2010). Teacher perceptions and attitudes are ultimately related to their beliefs, which, in turn, influence their behaviour in the classroom. In a study on the factors causing mathematics anxiety among students, teacher’s attitudes and the way they teach the subject were found to be two of the main contributors. Foo and Ong (2007) found that females were generally more anxious
about science than males, especially when taking examinations and performing experiments in the laboratories. Added to this, another factor that influences teachers’ behaviours in the classroom as well as their perceptions about gender equality among students is prior experience training as teachers (Erden, 2009). Many teachers were also unaware that they had personal gender biases. This is especially important when teaching science because studies have shown that there was a female gender bias in science. Teachers were also found to pay more attention, in the form of praises as well as constructive criticisms, to males rather than to females in their classes (Foo & Ong, 2007). The learning environment of students, which includes a range of settings both in and out of the classroom, will influence learning. These environments, which include teachers’ values, have an overall influence on students’ attitudes and achievements (Yan & Kember, 2003). The same study also found that relationships between teachers and their students are strongly determined by the curriculum and characteristic of the group.

Most teachers bring with them a set of beliefs and values that will determine the way in which they teach. A study by Samuelowicz and Bain (2001) on teacher beliefs, found that the learning and achievement goals individual teachers had for their students determined the approach they would use to teach students. It can be said that one of the most crucial factors in determining the effectiveness of teaching and learning in the classroom and making a difference in students’ lives was the teacher (Neal et al., 2001; Vogt 2002). However, many teachers in Malaysia often resort to a more didactic teaching approach (Leong, 2009). Teachers less knowledgeable in science, tend to discourage discussions among the students, become restricted by their textbooks thus making the teaching and learning experience in the classroom very rigid (Maznah, 2004). Most teachers are also pre-occupied with preparing their students to sit for examinations to the point where their teaching becomes too result or exam-oriented. This method of teaching is overburdening students with too many facts, figures, instructions, procedures, formulae and other information without actually getting the students to learn, understand and appreciate the knowledge that they are acquiring deeply.

Benson (1989) noted that many science teachers misinterpreted the concepts of science and did not accurately teach them. If this is the case for teachers that are experts in their content area, it would be even more difficult for teachers who are not experts in science (Halim et al., 2006). Teachers who were not specifically trained to teach science tended to make mistakes in their explanation of concepts to students (Mak et al., 1999). The pressures of having to complete the syllabus and prepare students for examinations also hindered teachers from using more innovative methods to teach science (Morris, 1985). This had resulted in students being turned off science and would undermine their perceptions of it as well. In a study by Anderson (2004), it was found that primary school science teachers were less knowledgeable of the subject than secondary school science teachers. This lack of knowledge in science had resulted in teachers employing inappropriate teaching and learning strategies. Smith and Neale (1989), echoed this by stating that if teachers had misconceptions in science, and the same misconceptions were also found in their students.

The evidence from available literature points to the fact that students form attitudes towards science between the ages of ten and fourteen which are influenced by their teachers and determine their future choice of careers. The same can be said of their attitudes towards further engagement in science in higher education. The current investigation focuses on student attitudes toward science between the ages of nine and sixteen and their conceptual interpretations of science as a whole. Added to this, the attitudes of their teachers as well as their conceptual understanding of science will also be investigated. This will be analysed in relation to the diverse backgrounds of these students. Underpinning this study are the following research questions (RQs):

For the students
RQ1. What are students’ attitudes towards science and science education?
RQ2. What are students’ perceptions and how do they conceptually interpret science?
RQ3. What are the differences in attitudes and conceptual interpretation of science among students from culturally diverse backgrounds?

For the teachers
RQ4. What do teachers consider to be important content-related objective of science education?
RQ5. What are the teachers’ perceptions of the conceptual understanding of science?
RQ6. What do teacher perceive as the goals of science education?
RQ7. How do teachers deal with diversity in science education?
Methods, design and procedure

In order to answer the above research questions, questionnaires developed by the SED team were used. The questionnaires, drawn from a number of sources, were constructed to elicit models, values and motivation without employing any pre-existing scales (Griethuijsen et al, 2011). Students and teachers were asked to respond on the questionnaires using a Likert type rating scale as to whether they agreed or disagreed with the statements provided. They were also required to answer in writing based on their preferences. Particulars like name, age, gender, and school attended were asked in the questionnaires as well in order to obtain information on their background. All participants were asked to give their informed consent and were assured that all information given by them would be kept strictly confidential by the research team. They were also allowed to opt out of the study if they so wished.

There were four versions of the student questionnaire: English, Malay, Mandarin and Tamil. These were piloted on two students between the ages of ten and thirteen for each of the versions. There were three versions of the teacher questionnaire: English, Malay and Mandarin. The student and teacher particulars as well as their responses to the Likert-scale questions were converted into number codes to ease quantitative analysis of the data.

In this study the analysis method used is non-experimental quantitative research, where the variables are inherent and not manipulated. Data on student attitudes and conceptual interpretations of science collected through the survey were analysed and observed through descriptive data analysis. The differences of dependent variables across certain independent variables were analysed using independent sample t-test analysis at a significant level, $\alpha = 0.05$. Only findings with $\alpha < 0.05$ will be reported. Data from the teachers were analysed quantitatively using a descriptive approach.

Participants

Students from Standard 4 (Fourth Grade), Standard 5 (Fifth Grade), Form 1 (Seventh Grade) and Form 2 (Eighth Grade) between the ages of nine and sixteen were identified as samples for this research. A total of sixteen schools (8 primary and 8 secondary schools) across five states (Terengganu, Perak, Selangor, Melaka, Sabah) and one Federal Territory in Malaysia were requested to randomly sample their students. Fifty students from each level of primary school and one hundred students from each level of secondary school were sampled. In all 2334 Malaysian students from diverse backgrounds, such as gender, ethnicity, religion, academic ability, and residence, participated in this study where 55.4% were girls and 44.4% were boys. There were 708 (43.7%) of them from primary school and 1620 (56.3%) from secondary school. The students were also from different ethnic groups, with 39.3% Malay; 39.7% Chinese; 5.7% India; 0.5% Punjabi; and 0.5% Orang Asli with 7.8% Kadazan, 0.7% Murut; and 5.8% from other races. All the students were from diverse religious backgrounds made up of Muslims (41.30%), Buddhists (29.09%), Christians (18.85%), Hindus (4.11%), Sikhs (0.86%), other religions (0.43%) and no religion/do not know their religion (3.69%). A total of 110 teachers throughout Malaysia responded to the questionnaire.

Findings and discussion

Students’ attitudes towards science

RQ1. What are students’ attitudes towards science and science education?

In an attempt to answer the research question, the data collected from the student sample were analysed and the results are as follows:

Science and science related subjects as favourite

Of the 2,334 students who participated, 45.5% indicated that STEM related subjects were their favourite. Of the 45.5%, only 21.7% of them were interested in science or technology related subjects. From the whole sample, 43.1% of the students indicated STEM related subjects as their least favourite; 16.6% of the students indicated Mathematics, 9.2% Science, 9.2% earth science/ geography, and 7.2% Computer or KemahiranHidup(Living Skills) as their least favourite subjects. Of the 2,336 students, 32.3% liked all science lessons in school, while 54.8% liked some science lessons but not all of them.
The two main reasons for students liking their most favourite subjects was because they are "useful for life" (71.5%) and "I'm good at it" (54.5%). The rest of the students liked their most favourite subject for the following reasons: 44.2% wrote they can use their imaginations; 44.1% wrote they liked their teachers, and 40.3% wrote they liked to know how things worked. Students who indicated a STEM subject as their most favourite explained their reasons for liking the subject as: "it's about how things work" and "it's useful for life". An independent sample t-test on the reasons was carried out between students who liked STEM subjects and those who did not. The results of the analysis (α = 0.000, 0.007 in independent t-test) is shown in Table 1. The results show that the differences for two of the reasons indicated by students who liked STEM subjects and those who did not were significant.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Favourite subject</th>
<th>Mean</th>
<th>SD</th>
<th>Levene's Test for Equality of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>It about how things work</td>
<td>Non-STEM</td>
<td>1.97</td>
<td>0.752</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.70</td>
<td>0.779</td>
<td></td>
</tr>
<tr>
<td>It's useful for life</td>
<td>Non-STEM</td>
<td>1.39</td>
<td>0.618</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.32</td>
<td>0.670</td>
<td></td>
</tr>
</tbody>
</table>

Table 1 Independent samples t-test for reasons for students liking their most favourite subjects

Science and science related subjects least favourite

About 59% of the students responded that they perceived science subjects as their least favourite because "the subject is hard" and they "do not understand the subject". While 40.4% of the students perceived a subject as their least favourite because they felt "the subject taught about boring things". Students who indicated STEM as their least favourite subjects indicated the main reason for their dislike as "I find it too hard", while students who indicated non-STEM subjects as their least favourite explained their dislike as "it's about boring things". The differences in the mean for the two reasons are significant between students who felt a STEM subject is their least favourite and students who felt non-STEM subjects were their least favourites (α =0.004, 0.000 independent t-test) as shown in Table 2.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Favourite subject</th>
<th>Mean</th>
<th>SD</th>
<th>Levene's Test for Equality of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>It about boring things work</td>
<td>Non-STEM</td>
<td>1.73</td>
<td>0.731</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.81</td>
<td>0.778</td>
<td></td>
</tr>
<tr>
<td>I find it too hard</td>
<td>Non-STEM</td>
<td>1.54</td>
<td>0.683</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.40</td>
<td>0.607</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Independent samples t-test on reasons for students not liking their least favourite subject

Discussion

In the study, attitudes of students towards STEM subjects were measured based on their liking of the subject. The results show that more students disliked science subjects (59%) than liked them (45.7%). These results do not agree with those found by Balakrishnan (1998) in a study of secondary students where they generally had positive attitudes towards science.

It is also interesting to note that 71.6% of the students who indicated science as their favourite subject gave the reason for their choice as being useful in their lives. This would seem to support findings by Zain, et al. (2010) that students’ attitudes toward science improved when they were able to bridge what they learned in the classroom with the outside world.
Further to this, the analysis showed that there was a significant difference in the attitudes of the students who liked STEM subjects and those who did not with regard to the way they perceived science. A comparison of students liking STEM subjects found those who liked them perceived studying the subjects as useful for life ($\alpha = 0.007$) and that it was useful to know the information ($\alpha = 0.000$). In contrast, students who did not like STEM subjects perceived that it was about boring things ($\alpha = 0.009$) and was too difficult ($\alpha = 0.000$).

### Student perceptions and conceptual interpretation of science

**RQ2. What are students’ perceptions and how do they conceptually interpret science?**

The interpretation of the perceptions of students towards science was based on the definitions provided in the literature. Perceptions are formed as a result of selectively gathering information from the world around us. In an attempt to answer the research question, data collected from the student sample were analysed, and the results are as follows:

**Student perceptions of their science classes and science activities**

A total of 41.8% of the students perceived their peers who liked science as very intelligent. While 43.6% of the students perceived those of their age group who liked science as interesting to talk to, 35.2% of them did not agree that their peers who liked science were cool.

There were three factors with eigenvalues >1 extracted when a factor analysis was carried out on all fifteen questions under the category ‘Liking Science Activities’. The three factors are: ‘liking science activities’, which includes visiting science museums and watching TV programmes about science; ‘liking technology activities’, which includes finding out about new inventions and using new machines and technology, and ‘liking domestic activities’, which includes making clothes and cooking. The description analysis on the items in each factor showed a range from 54% to 60% of the students liking activities dealing with science or technology. These students did not like activities of a domestic nature such as making clothes and sewing, but they liked going to science museums, watching television programmes related to science and physical science events, finding out about inventions and discoveries, and using new machines and technologies. However, these students did not like “fixing things when they break” with a mean score of 1.98, “making things out of wood or metal” with a mean score of 2.2, or “making or altering clothes” with a mean score of 2.00. The scale has 3 scores: 1 indicates that the statement is very true for this; a score of 2 indicates that it is a bit true and 3 indicates not true at all.

When comparing students whose favourite subjects were STEM to those who preferred non-STEM subjects, it was found that the former had a significantly lower mean in their ratings for the following activities: “like going to museums” ($\alpha = 0.002$), “like watching TV about animals, nature and events” ($\alpha = 0.000$) and “like finding out about new inventions and discoveries” ($\alpha = 0.004$). A lower mean rating indicates greater interest in the activity. These students also "like to talk about science with parents and friends” ($\alpha = 0.000$), compared to those who indicated non-STEM as their most favourite subject as shown in Table 3.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Favourite subject</th>
<th>Mean</th>
<th>SD</th>
<th>Levene's Test for Equality of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like going to science museum</td>
<td>Non-STEM</td>
<td>1.63</td>
<td>0.698</td>
<td>9.793 0.002</td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.47</td>
<td>0.620</td>
<td></td>
</tr>
<tr>
<td>Like watching TV about animals and nature</td>
<td>Non-STEM</td>
<td>1.50</td>
<td>0.640</td>
<td>12.949 0.000</td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.44</td>
<td>0.593</td>
<td></td>
</tr>
<tr>
<td>Like finding out about new inventions and discoveries</td>
<td>Non-STEM</td>
<td>1.59</td>
<td>0.703</td>
<td>8.417 0.004</td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.51</td>
<td>0.665</td>
<td></td>
</tr>
<tr>
<td>Like to talk to friend about science</td>
<td>Non-STEM</td>
<td>2.00</td>
<td>0.699</td>
<td>35.551 0.000</td>
</tr>
<tr>
<td></td>
<td>STEM</td>
<td>1.82</td>
<td>0.727</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 Independent samples t-test on preferred activities of students
**Reasons for choosing a particular job**

Only 38.1% of the students liked a job related to science and technology while 41.0% stated that they may like this a little. A total of 70.1% of the students would “like a job where they can help people” with 25.1% of the students stating that they would like this a bit. While 57.7% of them would like “a job that will get them a lot of money”, 33.9% of the students stated that they would like this a little. They are not as interested in finding a job where they can discover or invent things or a job that can make them well known or respected. These findings are shown in Table 4.

<table>
<thead>
<tr>
<th>I would like a job….</th>
<th>I would like this a lot</th>
<th>I would like this a little</th>
<th>I would like this not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>where I work with others not just by myself</td>
<td>62.30%</td>
<td>29.60%</td>
<td>8.10%</td>
</tr>
<tr>
<td>where I can help people</td>
<td>70.10%</td>
<td>25.10%</td>
<td>4.70%</td>
</tr>
<tr>
<td>that will get me a lot of money</td>
<td>57.70%</td>
<td>33.90%</td>
<td>8.40%</td>
</tr>
<tr>
<td>Related to science and technology</td>
<td>38.10%</td>
<td>41.00%</td>
<td>20.90%</td>
</tr>
</tbody>
</table>

Table 4 Reasons for choosing a particular occupation

**Discussion**

The results showed about half of the students were interested in science and learning about science even during their recreational activities such as watching television and conversations with significant others. There were also significant differences between students who liked STEM subjects and those who did not. Students who liked STEM subjects were more likely to have recreational activities that were science related.

About 80% of the students perceived that they might like a job that is science related. This does not support the findings of Balakrishnan (1998) that only students with positive attitudes towards science tend to choose careers that are science related. The findings of this study suggest that students may opt for science related careers even when they do not have positive attitudes toward science. It is possible that these students might choose a science related career because they perceived that they may be able to help others, as well as, make money from it. It must be noted that about 95% of the students indicated that they would like to work in a profession where they could help others, and a similar percentage also indicated that they would like to make money from the job.

**Students’ conceptual interpretation of science**

Differences in students attitudes and conceptual perceptions of science

**RQ3. What are the differences in attitudes and conceptual perceptions of science among students from culturally diverse backgrounds?**

The data gathered from the student sample were analysed in order to answer the research question. It must be noted that the results quoted here are the percentages of responses for the ‘always’ and ‘very true’ options. The sample used consisted of students from culturally diverse backgrounds and was a representation of the population. The results of the analysis are as follows:

**Student perceptions of what they considered as science**

Three factors were extracted with eigenvalues >1 when a factor analysis was carried out on the twelve questions in the category of ‘What is science?’, with the exception of the item on ‘is science making predictions about the future’. The three factors identified were ‘natural science’, ‘social science’ and ‘applied science’, and a separate factor, ‘predictions about the future’. A description analysis on each item in the four factors showed that students perceived natural science as science but did not perceive social science, applied science, and predictions about the future as science. Students’ perceptions of what they considered science included the following: “finding out about climate change” (60.2%), “finding out how to cure diseases” (62.4%), “looking at fossils and dinosaurs” (65.4%), and “exploring space” (79.7%). However, a lower percentage of them considered the following as science: “finding out why some countries are poor and some rich” (45.5%), “healing people who are sick” (45.9%), and “reading about people in the past who discovered or invented things” (48.3%).
Only a small percentage of them included the following as science: "farming", "building a bridge" (21.4%), "finding out why some people learn things more easily than others" (26.3%), and "digging up old cities and temples" (23.4%). A total of 11.4% of them considered "making music" as science, and 14.8% of them perceived that "trying to predict whether you will be lucky in the future" is science. It was also found that there was no significant difference in perceptions between those who liked STEM subjects and those who did not.

**Students’ perception of the environment and their ethical awareness**

Based on the results obtained for student responses to environmental issues, it was found they perceived most of the environmental and moral issues listed on the statements as true. The mean scores for the statements ranged from 1.39 to 1.65 with 1 being ‘this is very true for me’ and 2 being ‘this is a bit true for me’.

More than 47% of the students were aware of four issues about the environment around them: global warming, testing of products on animals, saving the environment, and ethical issues related to scientific discoveries. The results of the findings are shown in Table 5. Only students that responded ‘very true’ on the questionnaire statements were considered. In all, students were well aware of the environment and ethical related issues based on their responses to the statements on the questionnaire.

**Table 5** Means and percentages of ‘very true’ student responses to environmental and science related ethical questions.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean (SD)</th>
<th>% of “very true”</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am worried about global warming</td>
<td>1.39 (0.601)</td>
<td>66.70%</td>
</tr>
<tr>
<td>I am careful not to buy products that have been tested on animals</td>
<td>1.65 (0.694)</td>
<td>47.40%</td>
</tr>
<tr>
<td>I do everything I can to help to save the environment</td>
<td>1.53 (0.619)</td>
<td>53.50%</td>
</tr>
<tr>
<td>I am worried that scientists may discover or invent something that will cause a big disaster</td>
<td>1.61 (0.734)</td>
<td>53.00%</td>
</tr>
</tbody>
</table>

*Percentage averages were calculated only for responses with ‘1=this is very true’ All averages are significant at α>0.005

**Student perceptions of the nature of science and questions on morality**

A total of 39.8% of students responded that they perceived as very true "science can help solve most problems that people face in their life". Only 27.5% of the students perceived the statement "science tells us what is completely true" as very true, and 26.0% of the students perceived "the best scientists stick to facts" as very true. A similar number, 26.5%, also responded that "scientists should decide where science goes rather than the government ". Surprisingly, a higher number, 29.8%, perceived that "it's OK to use animals to save human lives" as being very true. There is no significant difference between those who chose STEM subjects as their most favourite over those who did not. Table 6 shows the percentage of students who were confident of and trusted the facts about science, and the ethics behind the contributions made by scientists to the body of knowledge. The word ethics here implies the morality used when conducting scientific experiments.

**Table 6** Means and percentages of ‘very true’ student responses for nature of science and moralities governing the use of science statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean (SD)</th>
<th>% of “very true”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science can help solve most problems that people face in their life only a few</td>
<td>1.89 (0.906)</td>
<td>39.80%</td>
</tr>
<tr>
<td>Science is just the best guess that scientists can make/tells us what is completely true</td>
<td>2.71 (1.039)</td>
<td>27.50%</td>
</tr>
<tr>
<td>Science discoveries are made by a team/are the work of only one very intelligent person</td>
<td>1.98 (1.039)</td>
<td>42.10%</td>
</tr>
<tr>
<td>The best scientists use their imagination/stick to facts</td>
<td>2.50 (1.154)</td>
<td>26.00%</td>
</tr>
<tr>
<td>Governments should limit science/scientists should decide where science goes</td>
<td>2.37 (1.081)</td>
<td>26.50%</td>
</tr>
<tr>
<td>Using animals in experiments is always wrong/it’s OK to use animals to save human lives</td>
<td>2.34 (1.089)</td>
<td>29.80%</td>
</tr>
</tbody>
</table>

*Percentage averages were calculated only for responses with ‘1=this is very true’ All averages are significant at α<0.005
Attitudes and conceptual perceptions of different gender

There was no significant difference in the attitudes of the two genders and their conceptual perceptions of science, except for their preferred nature of work. It was found that 74.7% of the girls would like a job where they can help people compared to 64.6% of boys. A higher percentage of boys (53.4%) would like a job where they can discover and invent new things compared to 41.5% of the girls. More boys (43.7%) would like jobs related to science and technology compared to 33.5% of girls. The girls were only slightly more worried about global warming (67.6%) than the boys (66.1%). However, the boys (48.9%) were slightly more careful about not buying products that have been tested on animals compared to the girls (47.0%).

Discussion

These students perceived knowledge pertaining to science as those directly related to the three basic sciences: biology, chemistry and physics. Most of them do not see application of science, scientific knowledge, or scientific skills as science. It is interesting to note that these students did not consider the building of bridges or farming as a science. These findings seem to support the findings of Lim (2006), that Malaysian students study science as a means of accumulating knowledge and may not be able to apply this knowledge.

Although more than half of the students were not aware of the more prominent environmental issues, such as global warming or ethical issues in science such as the testing of products on animal, those who were aware perceived these problems as important to them. The small number of students who seemed to be aware of environmental issues could be reflective of what is learned in school and not their awareness of the immediate environment. This seems to support the findings of Aitkenhead (2000) and Jegede&Aitkenhead, (1999) that the potential for students to learn science is increased if connectivity between students’ environment with the learning of science can be established.

There were no significant differences in the attitudes of the two genders. These results do not support the findings of Balakrishnan (1998) that Malaysian males tend to have better attitudes towards science than females. This finding, however, supports Halpern, et al. (2007) who found that gender only played a small part in individuals who were average when learning science. There seemed to a slight difference in the various cultural groups, with the Chinese being the least likely to choose a job in science. This also supports the findings by Halpern, et al (2007) that socio-cultural factors could be influencing students who pursue the sciences.

Teachers’ perceptions of science education

RQ4. What do teachers consider to be important content-related objective of science education?

Teachers in Malaysia perceived the measurement of things (1.22) and the basic food groups (1.25) to be the most important content-related objectives while they considered effectiveness of a medicine or a medical treatment (1.96) together with key historical figures and key developments in science (1.75) to be the least important. It is interesting that these teachers perceived measurement and classification of food as important as these are only fundamental knowledge when learning science centred round the knowledge and comprehension levels of learning while they did not place as much emphasis on content that would help students develop evaluative and analytical skills.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>how to measure volume, mass, weight and size</td>
<td>1.22</td>
<td>.54</td>
</tr>
<tr>
<td>basic components of living and non-living things</td>
<td>1.41</td>
<td>.61</td>
</tr>
<tr>
<td>the solar system</td>
<td>1.57</td>
<td>.66</td>
</tr>
<tr>
<td>the relationship between disease and hygiene</td>
<td>1.33</td>
<td>.58</td>
</tr>
<tr>
<td>how to conduct an experiment</td>
<td>1.59</td>
<td>.66</td>
</tr>
<tr>
<td>how to access whether a medicine or treatment is effective</td>
<td>1.96</td>
<td>.86</td>
</tr>
</tbody>
</table>
RQ5. What are the teachers’ perceptions of the conceptual understanding of science?

The same statements were used to determine conceptual understanding of science for students as well as teachers. Table 8 shows a comparison of the percentages of responses to each statement for students and teachers. In general the students were more positivists in their conceptual understanding of science than the teachers.

It is interesting to note that while the teachers and students agreed in most of their conceptual understanding of science, there were some interesting differences. Most of the teachers (72.5%) agreed that ‘science includes making music’, more than half of the students (56.1%) did not agree with the statement. For the statement ‘science includes digging up old cities and temples’, 88.9% of the teachers agreed, however 40.1% of students disagreed. Teachers perceived that science includes farming (95.5%) and bridge building (94.5%) ; however, there were a substantial percentage of students, 47.6% and 45.5% respectively, who did not agree with the statements. The responses of the teachers seemed to show an understanding that science is applicable to everyday life; however, this understanding did not seem to be effectively imparted to their students. These findings imply that science is taught to students without emphasis on application. Students learn science more as facts and are not able to see its application in everyday life. They learned the concepts more as content material rather than contextually.

When it comes to the statement that ‘science includes healing people’ 81.5% of the teachers found the statement always true while only 45.9% of the students found it always true. In the statement on science being able to find out why some countries are rich and others poor, 65.9% of the students did not agree with the statement while only 29.6% of teachers disagreed with the statement. These findings would imply that teachers and students may not necessarily share a common conceptual understanding of science. It may also be concluded that the students’ immediate environment and social interactions with significant others would play a role in forming their perceptions of science.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Part of science?</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teachers</td>
<td>Students</td>
</tr>
<tr>
<td>Science includes making music</td>
<td>Always</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>58.7</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>27.5</td>
</tr>
<tr>
<td>Science includes looking at fossils and dinosaurs</td>
<td>Always</td>
<td>77.8</td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>20.4</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>1.9</td>
</tr>
<tr>
<td>Science includes trying to predict whether you will be lucky in the future</td>
<td>Always</td>
<td>10.9</td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>38.2</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>50.9</td>
</tr>
<tr>
<td>Science includes finding out how to cure diseases</td>
<td>Always</td>
<td>88.1</td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>1.8</td>
</tr>
</tbody>
</table>
**Table 8 A comparison of teachers’ and students’ conceptual interpretation of science**

In the teachers’ interpretation of the nature of science, Malaysian teachers were in agreement with the statement that ‘science is about natural phenomena that are the same everywhere’. However, these teachers were less agreeable with the statements that ‘science is not value free because the questions scientists ask are affected by funding agencies and ‘science is not value free because the questions scientists ask and the methods they use are affected by what they believe is important’.

**RQ6. What do teacher perceive as the goals of science education?**

The responses of the teachers showed that they agreed with the goal statements; however, they did not agree that they were reaching the goals. The results also showed that they agreed that they were striving to reach the goals in the statements. It is interesting to note that these teachers perceived that they had achieved the goal of teaching students the ‘historical background of science’ and getting students to learn that ‘science is the result of group activity’. This is contrary to their response to the content related goal statement that learning about historical science figures (refer to Table 7) is not as important.
Students should be taught that science uses a range of methods

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>1.37</td>
<td>.64</td>
</tr>
<tr>
<td>should know</td>
<td>1.99</td>
<td>.73</td>
</tr>
<tr>
<td>that science</td>
<td>2.13</td>
<td>.73</td>
</tr>
<tr>
<td>is tentative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>1.26</td>
<td>.48</td>
</tr>
<tr>
<td>should know</td>
<td>1.90</td>
<td>.75</td>
</tr>
<tr>
<td>that science</td>
<td>2.03</td>
<td>.71</td>
</tr>
<tr>
<td>is often the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>result of</td>
<td>1.54</td>
<td>.679</td>
</tr>
<tr>
<td>group activity</td>
<td>2.28</td>
<td>.80</td>
</tr>
<tr>
<td>Students</td>
<td>2.40</td>
<td>.82</td>
</tr>
</tbody>
</table>

S.D. = Standard Deviation

Students should know that science is tentative

Students should know that science is often the result of group activity

*For agreeing to goals in the statement 1=I completely agree, 2=I agree a bit, 3=I disagree a bit, 4= I completely disagree.
For striving for the goals in the statement, 1=I always strive to reach this goal, 2=I often strive to reach this goal, 3= I sometimes strive to reach this goal, 4= I never strive to reach this goal. For reaching the goals in the statement, 1= I always reach this goal, 2= I often reach this goal, 3= I sometimes reach this goals, 4= I never reach this goal.

Table 9 Analysis of teacher’s responses to statements on goals of science education

**RQ7. How do teachers deal with diversity in science education?**

In the questionnaire there were several questions on diversity in the classroom. One of the questions described three possible situations that could have been experienced by teachers. The first described a conflict students had with science and religion. The second described a female student complaining that all the pictures in her science book were of white men and that science does not relate to her life. The third is of a student offering a non-western cough medicine to a teacher and warning against the use of western cough medicines. The results are shown on Table 10. The results showed that more Malaysian teachers experienced students being conflicted between science and religion than the other two situations.

<table>
<thead>
<tr>
<th>Possible conflicts</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students mentioned conflict between science and religion</td>
<td>23.9</td>
</tr>
<tr>
<td>Students mentioned the irrelevance to her of the</td>
<td>13.2</td>
</tr>
<tr>
<td>western male context of science texts</td>
<td></td>
</tr>
<tr>
<td>Students mentioned risks of western medicines</td>
<td>17.9</td>
</tr>
</tbody>
</table>

Table 10 Conflicts that arise when teaching science

The teachers in general disagreed that there was a gender bias against girls being less motivated to study science than the boys. They also were of the perception that motivation to learn science was not dependent on whether a student belongs to a particular cultural (2.84) or religious (2.89) group. The teachers tended to ignore gender, ethnicity and religion (1.58) among their students and tried to find examples that were relevant to gender (1.60) rather than a particular cultural (1.77) group.

<table>
<thead>
<tr>
<th>Statement</th>
<th>*Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To help all students learn I try to ignore gender, ethnic and religious</td>
<td>1.58</td>
<td>.76</td>
</tr>
<tr>
<td>differences amongst my students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I try to find example relevant to different groups (e.g. boys and girls)</td>
<td>1.60</td>
<td>.682</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I try to find example relevant to different cultural experiences</td>
<td>1.77</td>
<td>.69</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whatever I do girls are less motivated to learn science than boys</td>
<td>2.80</td>
<td>.89</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whatever I do some ethnic cultural groups are less motivated to learn</td>
<td>2.84</td>
<td>.830</td>
</tr>
<tr>
<td>science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whatever I do some religious groups are less motivated to learn science</td>
<td>2.89</td>
<td>.83</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*A lower value means a greater agreement with the statement

Table 11 Teachers’ perceptions of teaching diverse classes
Conclusion

This study found that only one-fourth of the students between age nine and sixteen are interested in science. These students like science because they feel that it is useful to their lives. In contrast, a quarter of them perceive science and technology related courses as their least favourite because such courses are too difficult for them or are about boring things. However, it is interesting to note that the number of students who indicate no interest in science is small, and the number who like science activities is high. These results imply that students like science related activities, even if science is their least favourite course. They may find their science lessons too hard for them but may still be interested in science related activities. This finding indicates that science teachers need to ensure that their lessons contain some hands on activities that could help motivate students to learn.

The students indicated that they are confident about science as a subject and trust the facts they learn about science, as well as, the contributions of the scientists. A majority of the students perceive science only as knowledge that is directly related to the three basic sciences (biology, chemistry and physics). Most of them do not see application of science, scientific knowledge, or scientific skills as science, although the curriculum has started to emphasise scientific process skills and scientific knowledge. These students also indicated that they like science and technology related activities, but they do not like carrying out science or technology related jobs, and they do not like repair or maintenance work that requires manual labour. Such perceptions of science and working in science related jobs can become an obstacle to the development of a qualified and well trained work force in science and technology.

When students’ conceptual understanding of science was compared to their teachers’, there were contrasts in the perceptions of the two groups. The teachers perceive many things in their daily lives as an application of science but this perception is not shared by their students. This could be because the teachers place greater emphasis on goals that concentrate on the knowledge and comprehension levels in the classroom rather than goals that help students develop their evaluative and analytical skills. The teachers’ perception that they are teaching students using a more application based approach to learning science is not shared by their students. The results show that students learn science and its concepts as facts rather than as something that is applicable to their daily lives. This could explain the decline in interest towards studying science in their higher learning.

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We would like to acknowledge the contributions of Frances A. Bryant to the successful completion of this paper.

References


Beauchamp, G., & Parkinson, J. (2008). *Pupils’ attitudes towards school science as they transfer from an ICT-rich primary school to a secondary school with fewer ICT resources: Does ICT matter?* *Educational Information Technology*, 13,103–118.


Abstract

The Europe Commission (EC) initiated a number of studies to determine the reasons for the decline in the study of science and science literacy amongst European students. The Science Education for Diversity is one of the many projects funded under EC’s Seventh Framework Programme. This project hopes to find ways to improve science education in order to respond more effectively to the new student diversity in the European classroom. Lebanon, India, Turkey and Malaysia, countries where there is a rich diversity of cultures and yet science remains a popular career choice, were invited to join in the study with the United Kingdom and the Netherlands. This paper will present the findings from the six partner countries on the perceptions and attitudes of students and teachers towards science and learning science. It will also discuss the influence of student diversity when learning science and teaching it and the influence of gender. A comparison and discussion of the findings for the partner countries will also be included in this paper.

Keywords: Science education, student and teacher attributes, international study

Background

The Science Education for Diversity (SED) project started in 2009 with the aim of improving science education in Europe in order to more effectively respond to the new cultural diversity of students. One of the ways to do this is to learn in collaboration with international partner countries where science remains a popular career choice. Five countries were invited to partner with the United Kingdom (UK) to carry out the project: India, Lebanon, the Netherlands, Malaysia and Turkey. It was anticipated that the diverse contexts of the participating countries would give a good basis for designing new approaches to science education that would appeal to students within Europe and the world. This project was funded by the European Commission under the European Union Seventh Framework Programme (FP7).

The SED project follows from the proposition that in most of today’s societies’ knowledge of science and scientific ways of thinking is essential to participation in democratic decision making when issues that involve science are at stake. The decreasing engagement of many young people with science subjects in school is evident in the falling recruitment to the study of science and technology subjects at degree level in Europe.
(Griethuijser et al., 2011), as well as in Malaysia (Ng et al., 2011). This is a problem for generating a healthy knowledge economy and encouraging democratic participation in science. Prior research has revealed that the reasons young people are or are not drawn to science are complex and cultural in nature (Haste, 2004a; Haste, Muldoon, Hogan & Brosnan, 2008). There is a strong effect of gender, which does not mean that girls are not attracted to science but that they take a different approach to science than boys. A recent report to Nuffield on science education in Europe (Osborne & Dillon, 2008) supported by the ROSE (Relevance Of Science Education) report (Sjoberg & Schreiner, 2005) argues that one of the issues behind the decrease in those opting to study science is the diversity of lifestyles, religions and youth cultures. These issues are currently not well addressed by the somewhat limited approach to science education that dominates throughout Europe. This report then puts the responsibility for reviving science in Europe largely on the teaching methods and dissemination of the subject. The findings in these reports are congruent with the broadly similar conclusions of another report produced by a team for the EU Directorate General on Research, Science, Economy and Society (Rocard et al., 2007).

**Influence of Gender on Science Education**

Studies showing the levels of interest among girls in science and science careers have varied. Some studies have found low levels of interest in such topics among female students while others, by asking the same questions in different ways, have found a higher level of interest. Haste (2004) found that about a third of the boys and girls surveyed, age eleven to twelve, were interested in a ‘job related to science’. However, when the question was posed to fourteen to fifteen year old girls and phrased in a different way, (would they be interested in a ‘job related to science and engineering’) it was found that 64% of the boys and 49% of the girls responded positively (Haste et al., 2008). Further data from the Haste (2004) and Haste et al., (2008) studies suggest that girls’ interest in science focuses on different issues from boys. It may be surmised that the learning of science and engineering for the two genders may differ in the way they see things. Females, compared to males, do not see a scientific way of knowing as being widely applicable to problems and are more tolerant of ambiguity.

**Influence of Cultural Diversity on Science Education**

Recent literature on science education has pointed to the influence of inherently cultural biases as the reasons for young people to opt out of science and hence scientific careers. However, these studies are focused mainly on a western population (Lee & Luykx, 2006). The literature available is not able to capture how cultural mechanisms influence students’ orientations towards science and scientific career choices. This project hopes to bring some insight into the part played by cultural mechanisms in young peoples’ choices of a career in science.

**Methodology**

This research adopted a socio-cultural perspective on issues of science education and diversity. Accordingly, both science and science research were taken as human practices that were embedded in wider socio-cultural systems that by and large determine the norms, values, epistemologies, and beliefs at play in these practices (Haste 2004). This study also recognised that diversity is inherent to human life and brings about culturally specific forms of knowing, learning and science education in local settings. As such, the practice of science was dealt with as culturally situated in each of the participating countries. Hence, in order to pick up the cultural differences and understand how issues of diversity play a part in the practice of science education and how teachers and students deal with this, the research methods used were culturally situated. It is acknowledged that this cultural situatedness could be sampled in various ways, such as the conversation of individuals, the concrete setting of which they are a part, and the tools and artefacts they use in particular ways in their schools and classrooms.

Keeping in mind the need for cultural situatedness, data was collected using a method that would allow local researchers to open up conversations with teachers and students that would show cultural sensitivities as dialogues unfolded. In order to ensure this, the interview protocols were collectively agreed upon by the partners. Procedures were designed that allowed the researchers to explore the cultural specifics of the settings and understand how they contribute to the culturally situated nature of the dialogue. Such dialogues allow for gathering of data that provides an insider view of the local setting.

Data was collected both quantitatively as well as qualitatively. In this study quantitative data was collected in an attempt to find patterns within the data: relationships amongst phenomena in order to understand them in greater depth and what happens when things change. The study used four different kinds of research instruments:
questionnaires, interviews, focus group interviews and observation in the school environment. This paper will present the analysis of data from the questionnaire which was constructed to elicit models, values, attitudes and motivations. It was a deliberate policy not to use pre-existing scales. The items were ‘stand-alone’ so that in the analysis we could explore patterns and relationships between items, building up a picture of concepts, beliefs, values and motivational elements. The items were drawn from a range of sources such as the ROSE Project, but they have also been designed based on the exploratory questions that were asked. The research questions that were answered using the questionnaires are as follows:

For the students,
RQ1. What are students’ attitudes towards science and science education?
RQ2. What are students’ perceptions and how do they conceptually interpret science?
RQ3. What are the differences in attitudes and conceptual interpretation of science among students from culturally diverse backgrounds?

For the teachers,
RQ4. What do teachers consider to be important content-related goals of science education?
RQ5. What are the teachers’ perceptions of the conceptual understanding of science?
RQ6. What do teachers perceive as the goals of science education?
RQ7. How do teachers deal with diversity in science education?

The analysis of the questionnaire was started by building profiles from the sample through exploratory factor analysis. This will be carried out on the entire sample and also within each nation.

Sampling

Data was collected from students and teachers in the partner countries. In the tables presented, the following acronyms are used to indicate the partner countries: UK (United Kingdom), NL (The Netherlands), LE (Lebanon), TR (Turkey) and MA (Malaysia). The breakdown of the number of participants by country is in the following sections.

Student Questionnaire

In total over 9000 students between ages eight and sixteen filled in the questionnaires. Each country selected several primary schools and several secondary or middle schools to participate. Only schools with a mixed sex population were selected for the study. In the selection of the schools, the location of the schools (rural, urban or suburban) and the composition of the school (religion, socioeconomic status, and ethnicity) were taken into account to ensure that the group of students filling in the questions were representative of the diversity found in the country. The students filling in the questionnaire were told not to discuss the questions among themselves, and a researcher was present to help the students and answer any questions they had about the questionnaire.

Each country had over 1000 respondents with Malaysia having over 2000. Of the total respondents, around 93% of them fell in the age group of ten to fourteen years old which was the focus of the research project. The thirteen year old group were well represented with 2847 respondents. Half the students were male and the other half were female.

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>1618</td>
<td>17.6</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>1239</td>
<td>13.5</td>
</tr>
<tr>
<td>Lebanon</td>
<td>1260</td>
<td>13.7</td>
</tr>
<tr>
<td>Turkey</td>
<td>1198</td>
<td>13.1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2334</td>
<td>25.4</td>
</tr>
<tr>
<td>India</td>
<td>1522</td>
<td>16.6</td>
</tr>
<tr>
<td>Total</td>
<td>9171</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 1 Number of students who filled in the questionnaire

Teacher Questionnaire

Over three hundred teachers filled in the teacher questionnaire. Table 2 shows the sample size of teachers for each country. Of these teachers, around two thirds were female and the rest were male. Most of the teachers who
filled in the questionnaire were in their thirties (30%) or forties (35%), 20% were in their twenties and 15% were in their fifties or more.

<table>
<thead>
<tr>
<th>Country</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>34</td>
<td>10.3</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>21</td>
<td>6.3</td>
</tr>
<tr>
<td>Lebanon</td>
<td>24</td>
<td>7.3</td>
</tr>
<tr>
<td>Turkey</td>
<td>94</td>
<td>28.4</td>
</tr>
<tr>
<td>Malaysia</td>
<td>110</td>
<td>33.2</td>
</tr>
<tr>
<td>India</td>
<td>48</td>
<td>14.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>331</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 2 Number of teachers who filled in the questionnaire

**Results**

The questions on the questionnaire were analysed descriptively in two ways. The percentage of respondents that gave one particular answer was calculated. Secondly the mean and standard deviation of the scores given to questions where more than one answer could be picked was also determined. The mean was calculated for the sample population of each country. Significance between each variable was calculated at <0.05. The student questionnaire was also thematically analysed with respect to the research questions. The themes that are discussed in this paper are student attitudes towards science and science courses; students’ conceptions of science; and science education and gender. The teacher questionnaire was analysed similarly, and the themes presented in this paper include content-related objectives of science education; teachers’ conceptual understanding of science; goals of science education, and dealing with diversity in science.

**Analysis of student responses to the questionnaire**

*Student attitudes towards science courses and science*

In the first few questions of the student questionnaire, the students were asked to fill in their favourite course and their least favourite course. Answers were coded for the different branches of science: biology, physics, chemistry, mathematics, and for courses that did not have any relationship with science. If the respondent gave more than one course, the first was picked. Each country had different national curriculums, and this was reflected in the choices made by students. There were variances in the types of science courses offered in all of the six countries. Some had courses in technology, while other had separate or combined courses in Biology, Chemistry and Physics. To make up for these differences, all science courses combined with mathematics were classified as STEM (Science, Technology, Engineering and Mathematics) and the rest classified as non-STEM. Tables 3 and 4 indicate that there is a clear difference between the two western countries and the four non-western countries. Both the United Kingdom (29.6%) and the Netherlands (22.5%) have fewer students who consider science to be their favourite subject. India has the most students (60%) who picked science as their favourite subject.

<table>
<thead>
<tr>
<th>Course</th>
<th>Percentage (%)</th>
<th>UK</th>
<th>NL</th>
<th>LE</th>
<th>TR</th>
<th>IN</th>
<th>MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM</td>
<td></td>
<td>29.6</td>
<td>22.5</td>
<td>56.0</td>
<td>52.8</td>
<td>60.5</td>
<td>48.3</td>
</tr>
<tr>
<td>Non-STEM</td>
<td></td>
<td>70.4</td>
<td>77.5</td>
<td>44.0</td>
<td>47.2</td>
<td>39.5</td>
<td>51.7</td>
</tr>
</tbody>
</table>

Table 3 Most favourite courses of students per country

<table>
<thead>
<tr>
<th>Course</th>
<th>Percentage (%)</th>
<th>UK</th>
<th>NL</th>
<th>LE</th>
<th>TR</th>
<th>IN</th>
<th>MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM</td>
<td></td>
<td>48.8</td>
<td>39.0</td>
<td>37.8</td>
<td>41.5</td>
<td>27.0</td>
<td>44.7</td>
</tr>
<tr>
<td>Non-STEM</td>
<td></td>
<td>50.2</td>
<td>61.0</td>
<td>62.8</td>
<td>58.5</td>
<td>73.0</td>
<td>55.3</td>
</tr>
</tbody>
</table>

Table 4 Least favourite courses of students per country

The pattern is less clear for disliked courses. While more students dislike STEM courses in the UK than in non-western countries, this is not true for the Netherlands. India is the country in which STEM courses are the least disliked. The high percentage of dislike for stem courses in the UK is mainly due to the dislike of mathematics courses (33.1%). STEM and non-STEM courses are not liked or disliked for the same reasons. Tables 5 and 6
show the analysis of the responses of students to six reasons to like or dislike a course on the questionnaire. The students could indicate whether the reasons were important (score of 1), a little bit important (score of 2) or no reason (a score of 3). Similar reasons are given for liking STEM and non-STEM courses. The most important reasons for liking any course are that the student is good in the course; likes the teacher and the course is useful. The most important reasons for disliking a course are that the course is boring or too difficult.

Students who liked STEM courses liked them because the courses were about the working of things and because they were useful in life. Students like non-STEM courses because they like the teachers who taught them and because they could use their imagination during the courses. STEM courses are disliked because of the teachers that teach them and because the courses are not about feelings and beliefs.

<table>
<thead>
<tr>
<th>Course</th>
<th>Reasons for students liking their favourite course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It’s about how things work</td>
</tr>
<tr>
<td>Non-STEM Mean</td>
<td>2.15</td>
</tr>
<tr>
<td>SD</td>
<td>0.78</td>
</tr>
<tr>
<td>Stem Mean</td>
<td>1.67</td>
</tr>
<tr>
<td>SD</td>
<td>0.77</td>
</tr>
</tbody>
</table>

Table 4 Reasons for students liking their favourite course.

Average and standard deviations were calculated for the total group of students from all countries. The higher mean value shows that fewer students agree with the statement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Reasons for students disliking their least favourite course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It’s about boring things</td>
</tr>
<tr>
<td>Non-STEM Mean</td>
<td>1.67</td>
</tr>
<tr>
<td>SD</td>
<td>0.74</td>
</tr>
<tr>
<td>Stem Mean</td>
<td>1.72</td>
</tr>
<tr>
<td>SD</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Table 5 Reasons for students disliking their least favourite course.

Average and standard deviations were calculated for the total group of students from all countries. The higher mean value shows that fewer students agree with the statement.

On further analysis of the data, it was found that although fewer students from the UK and the Netherlands like science compared to the rest of the countries, fewer students from these two countries indicated that they do not like any science lessons. Fewer students also liked all their science classes in the UK and the Netherlands compared to the rest of the partner countries. The data also shows that science classes are generally liked because they offer clear answers.

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
</tr>
<tr>
<td>I like all science lessons in school</td>
<td>very true</td>
</tr>
<tr>
<td>a bit true</td>
<td>56.7</td>
</tr>
<tr>
<td>not true</td>
<td>20.3</td>
</tr>
<tr>
<td>I like some science lessons but not all of them</td>
<td>very true</td>
</tr>
<tr>
<td>a bit true</td>
<td>32.9</td>
</tr>
<tr>
<td>not true</td>
<td>12.8</td>
</tr>
</tbody>
</table>
Sub-theme: International Collaboration Research and Innovation: The Role of International Partners, The Challenges and Outcomes: Experience from Science Education for Diversity Project Grant under EU FP7

Students from the six partner countries also gave their perceptions of students who like science classes. Generally students from the Netherlands have the least positive perceptions of students who enjoy science classes followed by students from the UK. Generally students from the other partner countries had a more positive perception of science students; they are seen as intelligent, cool, interesting to talk to and having many friends.

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
</tr>
<tr>
<td>People my age who like science are very</td>
<td></td>
</tr>
<tr>
<td>intelligent</td>
<td></td>
</tr>
<tr>
<td>I agree a lot</td>
<td>15.7</td>
</tr>
<tr>
<td>I agree a little</td>
<td>63.0</td>
</tr>
<tr>
<td>I don’t agree</td>
<td>21.3</td>
</tr>
<tr>
<td>People my age who like science make friends</td>
<td></td>
</tr>
<tr>
<td>easily</td>
<td></td>
</tr>
<tr>
<td>I agree a lot</td>
<td>5.6</td>
</tr>
<tr>
<td>I agree a little</td>
<td>34.5</td>
</tr>
<tr>
<td>I don’t agree</td>
<td>59.9</td>
</tr>
<tr>
<td>People my age who like science are interesting to talk to</td>
<td></td>
</tr>
<tr>
<td>I agree a lot</td>
<td>17.9</td>
</tr>
<tr>
<td>I agree a little</td>
<td>53.5</td>
</tr>
<tr>
<td>I don’t agree</td>
<td>38.6</td>
</tr>
<tr>
<td>People my age who like science are cool</td>
<td></td>
</tr>
<tr>
<td>I agree a lot</td>
<td>8.6</td>
</tr>
<tr>
<td>I agree a little</td>
<td>36.8</td>
</tr>
<tr>
<td>I don’t agree</td>
<td>54.6</td>
</tr>
</tbody>
</table>

Table 5 Attitudes of students towards liking and disliking science

Table 6 Perceptions of peers who enjoy science classes

Things students like to do

Part of the questionnaire contained questions that asked students about things they liked to do. Students could indicate whether they liked doing something a lot (scored as 1), a little (scored as 2) or not at all (scored as 3). The scores differed significantly for each country. Some of the non-western countries, such as India, had lower scores for the questions indicating that students liked science-related activities more than the two western countries. For most of the statements that was a clear difference between the two western (UK and the Netherlands) and four non-western (Lebanon, Turkey, India and Malaysia) countries. In the first six statements shown on Table 7, which asked students to indicate their desire for learning about science, there was a distinct difference between the western and non-western countries. The western countries scored an average of 2 for the questions while the non-western countries scored between 1.33 and 1.74. It must be noted that there are further subtle differences among the non-western countries. Asian students were more interested in going to science museums while the Middle Eastern students wanted to learn about the human body.

In the questions on environmentalism, talking to friends and parents about science and caring for sick people, students from the western countries had higher scores, meaning that they agreed less with the statements. The difference between the scores of students from the western countries and those from non-western countries were also large. There was a smaller difference for the scores between the western and non-western countries for the statements concerning making or using things by hand. However, for the statements about cooking food and making or altering clothes, the western countries scored lower than the non-western countries. It could be because these activities are perceived by students in western countries as something creative and less as a chore or necessity than by students in non-western countries.
Students’ choice of work was also part of the questions about what they like and do not like to do. They were asked to indicate whether they would like something a lot, a little or not at all in their future job. The results of the analysis are shown on Table 8. The results showed that students in the western countries (UK and the Netherlands) are less likely to want a job related to science and technology than in other countries. These students are not interesting in a job where they can discover and invent new things. They are also less interested in jobs where they can help people and find salary most important. Students from Lebanon attach great value to a job that brings respect. The Indian students perceived that the fame that a job can bring them is more important than money.

<table>
<thead>
<tr>
<th>Activity</th>
<th>UK</th>
<th>NL</th>
<th>LE</th>
<th>TR</th>
<th>IN</th>
<th>MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like going to science museums</td>
<td>*Average score</td>
<td>2.14</td>
<td>1.96</td>
<td>1.61</td>
<td>1.66</td>
<td>1.45</td>
</tr>
<tr>
<td>**SD</td>
<td>0.70</td>
<td>0.71</td>
<td>0.73</td>
<td>0.68</td>
<td>0.63</td>
<td>0.65</td>
</tr>
<tr>
<td>I like watching TV about animals and nature</td>
<td>Average score</td>
<td>2.04</td>
<td>2.05</td>
<td>1.62</td>
<td>1.53</td>
<td>1.33</td>
</tr>
<tr>
<td>**SD</td>
<td>0.72</td>
<td>0.71</td>
<td>0.70</td>
<td>0.68</td>
<td>0.53</td>
<td>0.62</td>
</tr>
<tr>
<td>I like finding out how our body works</td>
<td>Average score</td>
<td>2.15</td>
<td>2.09</td>
<td>1.45</td>
<td>1.54</td>
<td>1.52</td>
</tr>
<tr>
<td>**SD</td>
<td>0.70</td>
<td>0.71</td>
<td>0.66</td>
<td>0.67</td>
<td>0.70</td>
<td>0.69</td>
</tr>
<tr>
<td>I like watching TV about space and planets</td>
<td>Average score</td>
<td>2.16</td>
<td>2.27</td>
<td>1.74</td>
<td>1.51</td>
<td>1.38</td>
</tr>
<tr>
<td>**SD</td>
<td>0.79</td>
<td>0.77</td>
<td>0.80</td>
<td>0.69</td>
<td>0.59</td>
<td>0.72</td>
</tr>
<tr>
<td>I like finding out about new inventions and discoveries</td>
<td>Average score</td>
<td>1.98</td>
<td>1.95</td>
<td>1.37</td>
<td>1.46</td>
<td>1.42</td>
</tr>
<tr>
<td>**SD</td>
<td>0.74</td>
<td>0.76</td>
<td>0.59</td>
<td>0.65</td>
<td>0.62</td>
<td>0.69</td>
</tr>
<tr>
<td>I like watching TV about natural events (e.g. volcanoes)</td>
<td>Average score</td>
<td>2.05</td>
<td>2.10</td>
<td>1.57</td>
<td>1.54</td>
<td>1.38</td>
</tr>
<tr>
<td>**SD</td>
<td>0.77</td>
<td>0.78</td>
<td>0.70</td>
<td>0.71</td>
<td>0.59</td>
<td>0.67</td>
</tr>
<tr>
<td>I like thinking of ways my family and I can help the environment</td>
<td>Average score</td>
<td>2.18</td>
<td>2.39</td>
<td>1.59</td>
<td>1.65</td>
<td>1.43</td>
</tr>
<tr>
<td>**SD</td>
<td>0.71</td>
<td>0.69</td>
<td>0.69</td>
<td>0.72</td>
<td>0.57</td>
<td>0.68</td>
</tr>
<tr>
<td>I like talking to my parents about science</td>
<td>Average score</td>
<td>2.42</td>
<td>2.57</td>
<td>1.87</td>
<td>1.82</td>
<td>1.57</td>
</tr>
<tr>
<td>**SD</td>
<td>0.70</td>
<td>0.62</td>
<td>0.78</td>
<td>0.77</td>
<td>0.72</td>
<td>0.76</td>
</tr>
<tr>
<td>I like talking to my friends about science</td>
<td>Average score</td>
<td>2.47</td>
<td>2.63</td>
<td>2.01</td>
<td>1.73</td>
<td>1.55</td>
</tr>
<tr>
<td>**SD</td>
<td>0.66</td>
<td>0.59</td>
<td>0.77</td>
<td>0.75</td>
<td>0.67</td>
<td>0.72</td>
</tr>
<tr>
<td>I like to look after people when they are sick</td>
<td>Average score</td>
<td>2.14</td>
<td>2.17</td>
<td>1.47</td>
<td>1.70</td>
<td>1.41</td>
</tr>
<tr>
<td>**SD</td>
<td>0.73</td>
<td>0.76</td>
<td>0.66</td>
<td>0.70</td>
<td>0.58</td>
<td>0.68</td>
</tr>
<tr>
<td>I like using new machines and technology</td>
<td>Average score</td>
<td>1.52</td>
<td>1.93</td>
<td>1.33</td>
<td>1.38</td>
<td>1.57</td>
</tr>
<tr>
<td>**SD</td>
<td>0.70</td>
<td>0.82</td>
<td>0.59</td>
<td>0.62</td>
<td>0.68</td>
<td>0.70</td>
</tr>
<tr>
<td>I like fixing things when they break</td>
<td>Average score</td>
<td>1.90</td>
<td>2.24</td>
<td>1.78</td>
<td>1.91</td>
<td>1.79</td>
</tr>
<tr>
<td>**SD</td>
<td>0.80</td>
<td>0.79</td>
<td>0.77</td>
<td>0.79</td>
<td>0.76</td>
<td>0.75</td>
</tr>
<tr>
<td>I like cooking and preparing food</td>
<td>Average score</td>
<td>1.48</td>
<td>1.66</td>
<td>1.78</td>
<td>1.84</td>
<td>1.67</td>
</tr>
<tr>
<td>**SD</td>
<td>0.66</td>
<td>0.74</td>
<td>0.82</td>
<td>0.78</td>
<td>0.79</td>
<td>0.73</td>
</tr>
<tr>
<td>I like making things out of wood or metal</td>
<td>Average score</td>
<td>1.80</td>
<td>1.96</td>
<td>1.91</td>
<td>1.76</td>
<td>2.03</td>
</tr>
<tr>
<td>**SD</td>
<td>0.80</td>
<td>0.79</td>
<td>0.81</td>
<td>0.79</td>
<td>0.76</td>
<td>0.76</td>
</tr>
<tr>
<td>I like making or altering clothes</td>
<td>Average score</td>
<td>2.18</td>
<td>2.05</td>
<td>2.31</td>
<td>2.22</td>
<td>2.25</td>
</tr>
<tr>
<td>**SD</td>
<td>0.85</td>
<td>0.89</td>
<td>0.81</td>
<td>0.83</td>
<td>0.76</td>
<td>0.77</td>
</tr>
</tbody>
</table>

* The higher the average value, the less students agreed with the statement.
** Standard Deviation

Table 7: Average scores for things students like to do.

**Reasons for choosing a particular job**

Students’ choice of work was also part of the questions about what they like and do not like to do. They were asked to indicate whether they would like something a lot, a little or not at all in their future job. The results of the analysis are shown on Table 8. The results showed that students in the western countries (UK and the Netherlands) are less likely to want a job related to science and technology than in other countries. These students are not interesting in a job where they can discover and invent new things. They are also less interested in jobs where they can help people and find salary most important. Students from Lebanon attach great value to a job that brings respect. The Indian students perceived that the fame that a job can bring them is more important than money.

<table>
<thead>
<tr>
<th>I would like a job..</th>
<th>I would like this..</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>where I work with others not just by myself</td>
<td>a lot</td>
<td>67.9</td>
</tr>
<tr>
<td>a little</td>
<td>27.7</td>
<td>38.1</td>
</tr>
<tr>
<td>not at all</td>
<td>4.4</td>
<td>3.8</td>
</tr>
</tbody>
</table>
Sub-theme: International Collaboration Research and Innovation: The Role of International Partners, The Challenges and Outcomes: Experience from Science Education for Diversity Project Grant under EU FP7

where I can help people

<table>
<thead>
<tr>
<th></th>
<th>a lot</th>
<th>45.4</th>
<th>40.7</th>
<th>67.2</th>
<th>77.9</th>
<th>78.7</th>
<th>70.1</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>a little</td>
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<td>48.8</td>
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<td>19.3</td>
<td>17.9</td>
<td>25.1</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>9.8</td>
<td>10.5</td>
<td>6.2</td>
<td>2.8</td>
<td>3.4</td>
<td>4.7</td>
</tr>
</tbody>
</table>

where people look up to me and respect me

<table>
<thead>
<tr>
<th></th>
<th>a lot</th>
<th>69.2</th>
<th>53.6</th>
<th>87.7</th>
<th>74.0</th>
<th>54.5</th>
<th>47.6</th>
</tr>
</thead>
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<td></td>
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<td>26.9</td>
<td>38.3</td>
<td>9.2</td>
<td>18.1</td>
<td>33.0</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>4.0</td>
<td>8.1</td>
<td>3.0</td>
<td>7.8</td>
<td>12.6</td>
<td>14.9</td>
</tr>
</tbody>
</table>

where I can discover and invent new things

<table>
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<tr>
<th></th>
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<th>24.5</th>
<th>20.3</th>
<th>53.9</th>
<th>43.7</th>
<th>55.4</th>
<th>45.9</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>a little</td>
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<td>32.2</td>
<td>37.6</td>
<td>30.4</td>
<td>37.8</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>34.1</td>
<td>45.4</td>
<td>14.0</td>
<td>18.7</td>
<td>14.2</td>
<td>15.3</td>
</tr>
</tbody>
</table>

That will make me well known

<table>
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<tr>
<th></th>
<th>a lot</th>
<th>52.5</th>
<th>27.4</th>
<th>59.4</th>
<th>41.0</th>
<th>63.0</th>
<th>38.6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a little</td>
<td>36.9</td>
<td>42.5</td>
<td>27.0</td>
<td>35.6</td>
<td>28.8</td>
<td>43.1</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>10.6</td>
<td>30.1</td>
<td>13.6</td>
<td>23.4</td>
<td>8.2</td>
<td>18.4</td>
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</table>

That will get me a lot of money

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<th>64.0</th>
<th>63.2</th>
<th>57.6</th>
<th>42.5</th>
<th>57.7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a little</td>
<td>26.3</td>
<td>33.4</td>
<td>29.7</td>
<td>33.8</td>
<td>38.8</td>
<td>33.9</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>2.3</td>
<td>2.6</td>
<td>7.1</td>
<td>8.6</td>
<td>18.7</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Related to science and technology

<table>
<thead>
<tr>
<th></th>
<th>a lot</th>
<th>19.6</th>
<th>13.9</th>
<th>36.7</th>
<th>49.6</th>
<th>54.5</th>
<th>38.1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a little</td>
<td>38.5</td>
<td>34.2</td>
<td>28.8</td>
<td>32.2</td>
<td>27.9</td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>41.9</td>
<td>51.9</td>
<td>34.5</td>
<td>18.2</td>
<td>17.6</td>
<td>20.9</td>
</tr>
</tbody>
</table>

Table 8 Reasons for liking a particular job

Preference for a science-related occupation among ethnic groups

When the data for the statement ‘I would like a job related to science and technology’ were compared for the different ethnicities in the sample, it showed difference within countries. This statement was used as there was a strong correlation of its scores with other similar statements expressing interest in science. The results are shown on Table 9. In the analysis only minority ethnicities, where numbers were sufficient to create significant results, were compared.

In the British sample, it was found that the minority group from India were more interested in having a science related career than the natives. In the Netherlands there were no differences between the Dutch, Moroccans or Indonesians. However, the Turkish students in the Netherlands seem to express the least interest in a science related career. In Lebanon, the Armenian and Syrian students were more interested in a job related to science than the Lebanese, Palestinians or Kurdish ones. The Kurdish minority in Turkey had a lower interest in a science related career than the natives. In Malaysia, the Chinese students expressed the least interest in a science career while the Indians expressed the greatest interest.

<table>
<thead>
<tr>
<th>Country</th>
<th>Ethnic Group</th>
<th>*Mean Score</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>British</td>
<td>2.26</td>
<td>1046</td>
</tr>
<tr>
<td></td>
<td>Indian/Pakistani/Bangladesh</td>
<td>2.04</td>
<td>103</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Dutch</td>
<td>2.37</td>
<td>1068</td>
</tr>
<tr>
<td></td>
<td>Moroccan</td>
<td>2.37</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Turkish</td>
<td>2.56</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Indonesian</td>
<td>2.36</td>
<td>58</td>
</tr>
<tr>
<td>Lebanon</td>
<td>Lebanese</td>
<td>1.98</td>
<td>1117</td>
</tr>
<tr>
<td></td>
<td>Armenian</td>
<td>1.80</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Palestinian</td>
<td>2.05</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Syrian</td>
<td>1.87</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Kurdish</td>
<td>2.10</td>
<td>29</td>
</tr>
<tr>
<td>Turkey</td>
<td>Turkish</td>
<td>1.68</td>
<td>1116</td>
</tr>
<tr>
<td></td>
<td>Kurdish</td>
<td>1.83</td>
<td>69</td>
</tr>
</tbody>
</table>
Preferences for a science related career and gender

In the analysis of data for job preferences between the genders, there were differences found in the different countries. Table 10 shows the job preference indicated by gender. There were gender gaps for job related questions in all the partner countries. There was no difference between the girls and boys when the job required one to work with other people. However, there was a gender gap when the job was about helping other people. The girls in all partner countries agreed with statement more than the boys. The boys liked a job related to science and technology more than the girls in all partner countries with the largest gap of 18.6% found in the Netherlands and the smallest of 5.5% found in Lebanon. A comparable gap exists in the responses to the statement about wanting a job where one can discover and invent new things.

<table>
<thead>
<tr>
<th>I would like a job..</th>
<th>I would like this..</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>UK</td>
</tr>
<tr>
<td>where I work with others not just by myself</td>
<td>a lot</td>
<td>67.1</td>
</tr>
<tr>
<td></td>
<td>a little</td>
<td>28.9</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>4.0</td>
</tr>
<tr>
<td>where I can help people</td>
<td>a lot</td>
<td>49.9</td>
</tr>
<tr>
<td></td>
<td>a little</td>
<td>41.2</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>9.0</td>
</tr>
<tr>
<td>where I can discover and invent new things</td>
<td>a lot</td>
<td>18.7</td>
</tr>
<tr>
<td></td>
<td>a little</td>
<td>29.7</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>38.5</td>
</tr>
<tr>
<td>Related to science and technology</td>
<td>a lot</td>
<td>15.2</td>
</tr>
<tr>
<td></td>
<td>a little</td>
<td>23.5</td>
</tr>
<tr>
<td></td>
<td>not at all</td>
<td>38.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39.0</td>
</tr>
</tbody>
</table>

Table 10 Reasons for liking a particular job by gender

Conceptual interpretation of science

The questions on students’ conceptual interpretation of science offer insight into how students view science. Their responses to the questions show the breadth of interpretation of what belongs to the domain of science and what does not belong to science. Differences can be attributed to the manner in which the word ‘science’ has been translated in the curriculum for science of the partner countries. Science in English terms is most restrictive.
in its use. However, in the Dutch translation for science ‘wetenschap’ and the Turkish translation ‘fen veteknologi’ seem to include more practical applications of the natural sciences and social sciences. In Turkey and India, a large percentage of students perceived that trying to predict an individual’s luck belongs to the realm of science. This could possibly be a misconception of the meanings of the terms astronomy and astrology. Table 11 shows the analysis of students’ conceptual interpretation of science.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage (%)</th>
<th>UK</th>
<th>NL</th>
<th>LE</th>
<th>TR</th>
<th>IN</th>
<th>MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science includes making music</td>
<td></td>
<td>3.6</td>
<td>6.2</td>
<td>3.7</td>
<td>27.7</td>
<td>17.0</td>
<td>11.4</td>
</tr>
<tr>
<td>Always</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes</td>
<td></td>
<td>39.4</td>
<td>29.2</td>
<td>17.3</td>
<td>42.1</td>
<td>43.5</td>
<td>32.5</td>
</tr>
<tr>
<td>Never</td>
<td></td>
<td>56.9</td>
<td>64.7</td>
<td>79.1</td>
<td>30.2</td>
<td>39.5</td>
<td>56.1</td>
</tr>
<tr>
<td>Science includes looking at fossils and dinosaurs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td></td>
<td>36.9</td>
<td>71.3</td>
<td>52.6</td>
<td>72.8</td>
<td>46.0</td>
<td>65.4</td>
</tr>
<tr>
<td>Sometimes</td>
<td></td>
<td>58.4</td>
<td>24.6</td>
<td>43.8</td>
<td>21.0</td>
<td>42.8</td>
<td>30.8</td>
</tr>
<tr>
<td>Never</td>
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<td>4.7</td>
<td>4.0</td>
<td>3.6</td>
<td>6.2</td>
<td>11.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Science includes trying to predict whether you will be lucky in the future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td></td>
<td>9.2</td>
<td>11.7</td>
<td>7.0</td>
<td>26.9</td>
<td>30.4</td>
<td>14.8</td>
</tr>
<tr>
<td>Sometimes</td>
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<td>21.3</td>
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<td>27.2</td>
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<td>24.8</td>
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<tr>
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<td>79.1</td>
<td>45.8</td>
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<tr>
<td>Science includes finding out how to cure diseases</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>87.6</td>
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<td>9.0</td>
<td>4.9</td>
<td>5.0</td>
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</tr>
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<td>7.8</td>
<td>2.5</td>
<td>10.3</td>
<td>2.7</td>
</tr>
<tr>
<td>Science includes finding out about climate change</td>
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<td></td>
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<td>62.3</td>
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<td>29.9</td>
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<td></td>
<td>5.0</td>
<td>1.8</td>
<td>13.1</td>
<td>8.8</td>
<td>11.7</td>
<td>5.8</td>
</tr>
<tr>
<td>Science includes digging up old cities and temples</td>
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<td></td>
<td></td>
</tr>
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<td>43.8</td>
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<td>31.9</td>
<td>9.5</td>
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<td>40.1</td>
</tr>
<tr>
<td>Science includes healing people who are sick</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>57.8</td>
<td>55.3</td>
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<td>37.0</td>
<td>28.2</td>
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<td>24.5</td>
<td>17.1</td>
<td>14.0</td>
<td>13.7</td>
<td>19.7</td>
</tr>
<tr>
<td>Science includes farming</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td></td>
<td>4.6</td>
<td>10.3</td>
<td>36.6</td>
<td>14.1</td>
<td>39.0</td>
<td>15.2</td>
</tr>
<tr>
<td>Sometimes</td>
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<td>32.9</td>
<td>34.2</td>
<td>33.9</td>
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<td>56.8</td>
<td>29.2</td>
<td>52.1</td>
<td>23.6</td>
<td>47.6</td>
</tr>
<tr>
<td>Science includes building a bridge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td></td>
<td>9.4</td>
<td>35.5</td>
<td>10.1</td>
<td>35.2</td>
<td>24.9</td>
<td>21.4</td>
</tr>
<tr>
<td>Sometimes</td>
<td></td>
<td>38.2</td>
<td>36.6</td>
<td>22.1</td>
<td>34.0</td>
<td>34.2</td>
<td>33.1</td>
</tr>
<tr>
<td>Never</td>
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<td>52.5</td>
<td>27.9</td>
<td>67.8</td>
<td>30.9</td>
<td>40.8</td>
<td>45.5</td>
</tr>
<tr>
<td>Science include finding out why some countries are poor and some rich</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td></td>
<td>5.0</td>
<td>33.8</td>
<td>10.7</td>
<td>34.5</td>
<td>22.4</td>
<td>11.6</td>
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<tr>
<td>Sometimes</td>
<td></td>
<td>27.8</td>
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<td>Science includes reading about people in the past who discovered or invented things</td>
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Table 11 Students’ conceptual interpretation of science
Analysis of teacher responses to the questionnaire

Content-related goals of science education

The questions on content-related goals of science education had three options: 1= basic knowledge that all should have, 2= knowledge that should be expected of more able pupils and 3= knowledge required only for specialist future science training. In the analysis the three scores are averaged and a low score will indicate that teachers find the objective important for science education. There were considerable difference between the UK and the rest of the partner countries. The analysis is shown in Table 12.

In the UK, learning how to conduct an experiment, how to access medicine and how to access the internet to help with school work were considered to be among the most important goals of science education. However, these goals were less important for teachers from the other five partner countries. In the practical knowledge category on basic food groups and hygiene, the UK teachers did not perceive such knowledge as important when compared to the other partner countries. The UK teachers perceived knowing how to conduct experiments more important when compared to teachers from other countries. The responses to ‘how to measure volume and mass; basic food groups and key historical figures were not significantly different for all six partner countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Goals</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*1 how to measure volume, mass, weight and size</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>2 basic components of living and non-living things</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
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<td>3 the solar system</td>
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</tr>
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<td>4 the relationship between disease and hygiene</td>
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<td>5 how to conduct an experiment</td>
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<td>6 how to access whether a medicine or treatment is effective</td>
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<td>7 the basic food groups</td>
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<tr>
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<td>8 how to access the internet to help with school work</td>
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<td>9 key historical figures and events in the development of science</td>
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<td>10 human reproduction</td>
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<table>
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<td>.48</td>
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</table>

Table 12 Analysis of responses from teacher on content-related goals

Teachers’ conceptual understanding of science

The same question used to assess students’ conceptual understanding of science was used on the teachers. See table 11 for the analysis of students’ responses and Table 13 for an analysis of the teachers’ responses. In general the teachers seemed to have a broader interpretation of science than the students. Interestingly, a high percentage (67.6%) of teachers in the UK did not perceive ‘making music’ as science. In contrast, 37.8% of the Indian teachers perceived that ‘making music’ is always science. The UK teachers had the opposite perceptions of science when compared to the Indian teachers. It must also be noted that the UK teachers (17.6%) had the highest responses to science is never about ‘exploring space’ of all the partner countries.
Teachers from the UK, the Netherlands and Lebanon were firm in their perception that ‘predicting the future’ is not part of science, and there were only a few of the teachers giving a response of sometimes. While teachers from Turkey, India and Malaysia seemed to be more accepting of the idea although the percentages are lower than the responses from students.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Part of science?</th>
<th>Percentage (%)</th>
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<td>Science includes making music</td>
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<tr>
<td>Always</td>
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<tr>
<td>Sometimes</td>
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<td>76.2</td>
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<tr>
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<td>67.6</td>
<td>23.8</td>
</tr>
<tr>
<td>Science includes looking at fossils and dinosaurs</td>
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<td></td>
</tr>
<tr>
<td>Always</td>
<td>79.4</td>
<td>81.0</td>
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<tr>
<td>Sometimes</td>
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<tr>
<td>Never</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Science includes trying to predict whether you will be lucky in the future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
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<td>0.0</td>
</tr>
<tr>
<td>Sometimes</td>
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<td>14.3</td>
</tr>
<tr>
<td>Never</td>
<td>76.5</td>
<td>85.7</td>
</tr>
<tr>
<td>Science includes finding out how to cure diseases</td>
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<td></td>
</tr>
<tr>
<td>Always</td>
<td>82.4</td>
<td>85.7</td>
</tr>
<tr>
<td>Sometimes</td>
<td>17.6</td>
<td>9.5</td>
</tr>
<tr>
<td>Never</td>
<td>0.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Science includes exploring space</td>
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<tr>
<td>Always</td>
<td>23.5</td>
<td>81.0</td>
</tr>
<tr>
<td>Sometimes</td>
<td>58.8</td>
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</tr>
<tr>
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<td>17.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Science includes finding out about climate change</td>
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<tr>
<td>Science includes digging up old cities and temples</td>
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<td>Always</td>
<td>41.2</td>
<td>9.5</td>
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<tr>
<td>Sometimes</td>
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<td>85.7</td>
</tr>
<tr>
<td>Never</td>
<td>2.9</td>
<td>4.8</td>
</tr>
<tr>
<td>Science includes healing people who are sick</td>
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</tr>
<tr>
<td>Always</td>
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<td>81.0</td>
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<tr>
<td>Sometimes</td>
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<td>14.3</td>
</tr>
<tr>
<td>Never</td>
<td>2.9</td>
<td>4.8</td>
</tr>
<tr>
<td>Science includes farming</td>
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<tr>
<td>Always</td>
<td>14.7</td>
<td>47.6</td>
</tr>
<tr>
<td>Sometimes</td>
<td>67.6</td>
<td>47.6</td>
</tr>
<tr>
<td>Never</td>
<td>17.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Science includes building a bridge</td>
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<tr>
<td>Always</td>
<td>41.2</td>
<td>81.0</td>
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<tr>
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<td>52.9</td>
<td>14.3</td>
</tr>
<tr>
<td>Never</td>
<td>5.9</td>
<td>4.8</td>
</tr>
<tr>
<td>Science include finding out why some countries are poor and some rich</td>
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<td></td>
</tr>
<tr>
<td>Always</td>
<td>35.3</td>
<td>9.5</td>
</tr>
<tr>
<td>Sometimes</td>
<td>61.8</td>
<td>76.2</td>
</tr>
<tr>
<td>Never</td>
<td>2.9</td>
<td>14.3</td>
</tr>
<tr>
<td>Science includes finding out</td>
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</tr>
<tr>
<td>Always</td>
<td>27.3</td>
<td>47.6</td>
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</table>
why some people learning things more easily than others

<table>
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<tr>
<th>Activity</th>
<th>UK</th>
<th>NL</th>
<th>LE</th>
<th>TR</th>
<th>IN</th>
<th>MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes</td>
<td>63.6</td>
<td>52.4</td>
<td>66.7</td>
<td>31.5</td>
<td>47.8</td>
<td>58.2</td>
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<td>Never</td>
<td>9.1</td>
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<td>8.3</td>
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<td>10.0</td>
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</table>

Science includes reading about people in the past who discovered or invented things

<table>
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<tr>
<th>Activity</th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
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<td>Always</td>
<td>29.4</td>
<td>28.6</td>
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<td>Sometimes</td>
<td>61.8</td>
<td>70.8</td>
<td>37.4</td>
</tr>
<tr>
<td>Never</td>
<td>8.8</td>
<td>16.7</td>
<td>12.1</td>
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</tbody>
</table>

Table 13 Teachers’ conceptual interpretation of science

In the teachers' interpretations of the nature of science, those from the UK and the Netherlands had a slightly less positivist view than the teachers from the rest of the partner countries. They were more sceptical of the statements on the universality of science and the decisive nature of the evidence. These teachers also believed that science could be affected by funding agencies. There are no significant differences among the partner countries in statements about scientists using different theories or the effect of technology and culture on research. Table 14 shows the teachers’ interpretation of the nature of science.

<table>
<thead>
<tr>
<th>Activity</th>
<th>UK</th>
<th>NL</th>
<th>LE</th>
<th>TR</th>
<th>IN</th>
<th>MA</th>
</tr>
</thead>
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<tr>
<td>Science is about natural phenomena that the same everywhere</td>
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<td>1.71</td>
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<td>.77</td>
<td>.69</td>
<td>.80</td>
<td>.72</td>
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<tr>
<td>Eventually evidence will convince us which theory is correct</td>
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<td>1.63</td>
<td>1.49</td>
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<td>.51</td>
<td>.57</td>
<td>.51</td>
<td>.53</td>
</tr>
<tr>
<td>Scientists use different theories to come up with different interpretations</td>
<td>Average score 1.79</td>
<td>1.80</td>
<td>1.96</td>
<td>1.76</td>
<td>1.85</td>
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<td>.70</td>
<td>.71</td>
<td>.61</td>
<td>.79</td>
<td>.59</td>
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<tr>
<td>Science is not value free because the questions scientists ask are affected by funding agencies</td>
<td>Average score 1.94</td>
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<td>2.35</td>
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<td>.69</td>
<td>.82</td>
<td>.81</td>
<td>.92</td>
<td>.82</td>
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<tr>
<td>Science is not value free because the questions scientists ask and the methods they use are affected by what they believe is important</td>
<td>Average score 1.88</td>
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<td>1.83</td>
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<td>2.29</td>
<td>2.13</td>
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<td>SD</td>
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<td>.51</td>
<td>.48</td>
<td>.75</td>
<td>.92</td>
<td>.64</td>
</tr>
<tr>
<td>The way science is done is affected by the available technology</td>
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<td>1.78</td>
<td>1.98</td>
<td>1.99</td>
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<td>.52</td>
<td>.57</td>
<td>.54</td>
<td>.79</td>
<td>.57</td>
</tr>
<tr>
<td>Scientists from different cultures consider different questions because of their background</td>
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<td>2.05</td>
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<td>.85</td>
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</table>

*The higher the average value, the less teachers agreed with the statement.
**Standard Deviation

Table 14 Average scores for teachers’ interpretation of the nature of science

Teachers’ perceptions of the goals of science education

The questionnaire had statements on teaching goals for science. Analysis of the data (Table 15) showed that many teachers agreed with: had strived to and had reached some of the goals. Some of these teachers also admitted that they did not reach the goals that they had set. The Dutch teachers did not agree with the statements ‘students should be taught the historical and cultural background of science’ and ‘science uses a range of methods’. Turkish and Indian teachers were most confident about actually reaching their goals.

The teachers who indicated that they did not agree with the goals for science education or strive to achieve the goal did not do so because they believed that students should be focused on logic and facts. Secondly, they also believed that time constraints restricted them from achieving these goals.
Sub-theme: International Collaboration Research and Innovation: The Role of International Partners, The Challenges and Outcomes: Experience from Science Education for Diversity Project Grant under EU FP7

<table>
<thead>
<tr>
<th>Country</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1* Agree</td>
</tr>
<tr>
<td>UK</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>1.64</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
</tr>
<tr>
<td>Lebanon</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
</tr>
<tr>
<td>Turkey</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
</tr>
<tr>
<td>India</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
</tr>
</tbody>
</table>

Table 15 Analysis of teacher’s responses to statements on goals of science education

* 1 Students should be taught cultural/historical background of level of science
* 2 Science is an activity that involves creativity and imagination
* 3 Students should be taught that science uses a range of methods
* 4 Students should know that science is tentative
* 5 Students should know that science is often the result of group activity

Dealing with students diversity in science education

The questionnaire contained questions on how teachers dealt with diversity in their classrooms and if they had experienced problems with teaching a diverse group of students. One of the questions described three possible situations that could be faced by teachers. The first was about a student mentioning that there was a conflict between what was learned in the science class and the teaching in his/her religion. The second described a female student complaining that all the pictures in her science book were of white men and that science was not related to her life. The last was about students offering their teacher who had a cough, non-western medicine and warning the teacher against the use of western medicines. The teachers were asked to respond if they had experienced any of the three situations described. Table 16 shows the analysis of the responses from teachers. Teachers from all the partner countries had experienced situations where there was a conflict of science and religion with students. Teachers from Malaysia and India more commonly experienced students mentioning the risks of western medicine than Lebanon or Turkey. This was almost non-existent in the UK and the Netherlands.

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage (%)</th>
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<tr>
<td></td>
<td>1*</td>
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<tr>
<td>United Kingdom</td>
<td>26.5</td>
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<tr>
<td>The Netherlands</td>
<td>30.0</td>
</tr>
<tr>
<td>Lebanon</td>
<td>17.4</td>
</tr>
<tr>
<td>Turkey</td>
<td>33.0</td>
</tr>
<tr>
<td>India</td>
<td>13.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>23.9</td>
</tr>
</tbody>
</table>

Table 16 conflicts that arise when teaching science

* 1 Students mentioned conflict between science and religion
* 2 Students mentioned the irrelevance to her of the western male context of science texts
* 3 Students mentioned risks of western medicines
In general, teachers from all partner countries disagreed that girls had a lower motivation to learn science than boys. They also did not agree that specific cultures, ethnic groups or religious affiliates were less motivated to learn science than others. Teachers from all countries, with the exception of Turkey, paid more attention to using examples that were relevant to boys and girls. The teachers were not as attentive to using examples relevant for different cultural groups.

<table>
<thead>
<tr>
<th>Country</th>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>UK</td>
<td><strong>Mean</strong></td>
<td>2.38</td>
<td>1.64</td>
<td>1.88</td>
<td>3.30</td>
<td>3.35</td>
<td>3.30</td>
</tr>
<tr>
<td></td>
<td><strong>S.D.</strong></td>
<td>0.942</td>
<td>0.489</td>
<td>0.600</td>
<td>0.770</td>
<td>0.486</td>
<td>0.535</td>
</tr>
<tr>
<td>The</td>
<td>Mean</td>
<td>2.25</td>
<td>1.65</td>
<td>2.20</td>
<td>3.45</td>
<td>3.25</td>
<td>3.35</td>
</tr>
<tr>
<td>Netherlands</td>
<td>S.D.</td>
<td>0.851</td>
<td>0.587</td>
<td>0.696</td>
<td>0.605</td>
<td>0.550</td>
<td>0.489</td>
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<tr>
<td>Lebanon</td>
<td>Mean</td>
<td>1.83</td>
<td>1.42</td>
<td>1.61</td>
<td>3.42</td>
<td>3.52</td>
<td>3.52</td>
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<tr>
<td></td>
<td>S.D.</td>
<td>1.007</td>
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<td>0.499</td>
<td>0.717</td>
<td>0.593</td>
<td>0.593</td>
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<tr>
<td>Turkey</td>
<td>Mean</td>
<td>1.26</td>
<td>2.03</td>
<td>1.91</td>
<td>3.15</td>
<td>2.98</td>
<td>2.95</td>
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<td>S.D.</td>
<td>0.554</td>
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<td>0.903</td>
<td>0.842</td>
<td>0.853</td>
<td>0.880</td>
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<tr>
<td>India</td>
<td>Mean</td>
<td>1.39</td>
<td>1.62</td>
<td>1.85</td>
<td>3.15</td>
<td>3.06</td>
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<tr>
<td></td>
<td>S.D.</td>
<td>0.577</td>
<td>0.777</td>
<td>0.759</td>
<td>0.691</td>
<td>0.734</td>
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<tr>
<td>Malaysia</td>
<td>Mean</td>
<td>1.58</td>
<td>1.60</td>
<td>1.77</td>
<td>2.80</td>
<td>2.84</td>
<td>2.89</td>
</tr>
<tr>
<td></td>
<td>S.D.</td>
<td>0.759</td>
<td>0.682</td>
<td>0.686</td>
<td>0.890</td>
<td>0.830</td>
<td>0.828</td>
</tr>
</tbody>
</table>

**The higher the mean value, the less teachers agreed with the statement.*** Standard Deviation

Table 17 Perceptions of teachers on diversity in their classrooms

1. To help all students learn I try to ignore gender, ethnic and religious differences amongst my students
2. I try to find example relevant to different groups (e.g. boys and girls)
3. I try to find example relevant to different cultural experiences
4. Whatever I do girls are less motivated to learn science than boys
5. Whatever I do some ethnic cultural groups are less motivated to learn science
6. Whatever I do some religious groups are less motivated to learn science

Conclusions

The conclusions were drawn from the quantitative analysis of the data collected using the students and teacher questionnaires. These conclusions provide preliminary answers to the research questions posed.

Students' perceptions of science and learning science

In general, students in the four non-western countries of Turkey, Lebanon, India and Malaysia had more positive attitudes towards science courses than students in the two western countries. The data showed that these students tended to list STEM courses as one of their favourites and generally tended to have more positive attitudes toward learning and experiencing the various aspects of science. This is in line with the findings of the ROSE project (Sjøberg & Schreiner, 2005) which found that interest in science decreased with an increase of development in a country.

Students from the different partner countries did not share the same perceptions of what belonged in the realm of science, and the UK students had the narrowest perception of this. A possible explanation for this is that it could be due to the different translations and definitions of the word science in the various countries. In some of the countries, students may consider that social science is included as part of science. For instance, students from India and Turkey believed that predicting one’s luck for the future is part of science.

In all the partner countries, students believed that individuals who are good in science tend to be intelligent and can hold conversations about many different topics. None of the students in the partner countries perceived that being good in science enabled one to make friends easily, and neither did they perceive these individuals as being cool. Students from the UK and the Netherlands had the strongest perception of this compared to the other partner countries.

Gender gaps were found in all the partner countries with the UK and the Netherlands comparatively showing a greater gap. Girls were less interested in a career in science than boys for all the countries. There was also an
interplay seen for gender and ethical questions about science for the Netherlands and the UK. Dutch and British girls were more concerned with animal welfare than the boys. This was not found for the other partner countries.

It is interesting to note that there are differences in students’ perceptions of science between ethnic groups within a country. In the UK, the Indian minority group tended to be more interested in science. The level of interest of this group is slightly lower than the levels expressed by the native Indians and Indians in Malaysia. Turkish students in the Netherlands and Chinese students in Malaysia expressed lower levels of interest compared to the other groups in their respective countries.

The results showed that students liked science because they considered it to be useful in their lives and because it explains how things work. Students who did not like science considered it to be boring or too difficult. Disliking of one’s teacher and feelings of ignorance were generally not considered important reasons for disliking science courses.

In the UK and the Netherlands, science courses are less popular when compared to the other partner countries. Students from Turkey, Lebanon, India and Malaysia seemed to like science classes. Students from the UK and the Netherlands do not dislike science classes to a greater extent than the other partner countries. However, they were selective about the type of science classes that they liked. These students, in their spare time, have less interest in learning science compared to students from the other partner countries, but they have interest in practical or creative hobbies.

In all the countries, the most important reasons for students choosing a particular career were their capacity to earn money; ability to gain respect from others; opportunities to work with colleagues and ability to help others. Girls were less likely than boys to want a job in science and technology. They were, however, more likely to want a job where they can help others. Girls were also slightly less interested than the boys in having a job with a high salary and becoming famous. Students in the non-western partner countries were more interested in careers related to science and technology than those in the UK and the Netherlands. Indian students were interested in gaining fame but less interested in earning money than students from the other countries.

**Teachers’ perceptions of teaching science and science**

Many of the teachers in the study have experienced students expressing a conflict between culture and science in their classroom. The most commonly experienced conflicts with their students were those between science and religion and beliefs about traditional and western medicine. Lebanon and Malaysia were the only countries in which a great number of teachers experienced students expressing that they could not relate to the content of science books because of its western context.

Science teacher on the whole had a positivist idea of the nature of science. They believed that science is universal and that theories will eventually prove what is right in this world. The British and Dutch teachers were more accepting of the idea that science is not universal and evidence driven but is also driven by funding agencies.

Most of the science teachers did not agree with the idea that some minority groups, whether girls, religious minorities or cultural minorities, were intrinsically less motivated to learn science. Most of the teachers, especially those in Turkey, India and Malaysia indicated that they ignored any differences between the students they taught in terms of race, culture and religion. When the teachers made adjustments to the examples they used in class, it would be more for gender than different cultural groups.

Many of these teachers perceived that socio-scientific issues should be taught. However, they also noted that they were not always successful in reaching their goals of teaching those issues. The teachers who did not agree with teaching the socio-scientific issues perceived that students should be focused on logic and facts. Some teachers also indicated that there was inadequate time during the classes for discussion of the issues.

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References


Haste, H., Muldoon, C., Hogan, A., & Brosnan, M. (2008). If girls like ethics in their science and boys like gadgets, we can get science education right? British Association for the Advancement of Science Annual Festival. Liverpool.


Effects of the Design Based Framework Incorporating the Dialogic Approach, Student Funds of Knowledge and Inquiry Based Learning on Student Acquisition of Science in Two Malaysian Schools: A Case Study

Swee Chin, Ng
Tunku Abdul Rahman University College
ngsc@mail.tarc.edu.my

S. Chee, Choy
Tunku Abdul Rahman University College
choysc@mail.tarc.edu.my

Pou San, Oo
Tunku Abdul Rahman University College
oops@mail.tarc.edu.my

Fui Chung, Chin
Tunku Abdul Rahman University College
chinfc@mail.tarc.edu.my

Lee Wah, Teh
Tunku Abdul Rahman University College
tehlw@mail.tarc.edu.my

Abstract

This paper presents a case study of the effects of a design-based framework on student acquisition of science in two Malaysian secondary schools. The design-based framework incorporates the dialogic approach, student funds of knowledge and inquiry based learning. The study found teacher withitness in the classroom to be very important. The teacher must know what is happening in the classroom and maintain interaction with students to keep their interest. The ability of teachers to reflect on what they were doing in the classroom and how they can better present their lessons was found to be an important determinant of capturing student interest in learning science. Further to this, teachers who specialised in the field of science were better able to apply the strategies used in the study. There continues to be the presence of the teacher centred approach in Malaysian classroom, but with the interventions that were carried out in this study and the strategies introduced, it is hoped that teachers will begin to be more receptive of using student centred learning in the classroom. The effectiveness of the design based framework was also evident in all the other partner countries. As such this framework is applicable for students from diverse cultural and ethnic backgrounds.

Keywords: Science education, inquiry based learning, dialogic approach

Introduction

The perceptions students have about science and the learning of science will have an influence on their learning experiences in the classroom. These learning experiences, together with their own social and cultural orientations, contribute to students’ funds of knowledge (Zain&Rohandi, 2009) which enables them to generate ideas and formulate concepts. Ideas and concepts that are well established will result in students successfully using them as tools to enhance growth both personally and socially as well as contributing to their funds of knowledge.

However, studies have found that there may be a disparity, especially for students in diverse populations where there may be a gap between their everyday experiences and their science learning and culture. It must be noted that students learn science in two ways: enculturation and assimilation (Aitkenhead, 2000). When the world of
science generally harmonises with the students’ life outside of science, science instruction will tend to support their view of the world and the process of enculturation occurs. However, when science is generally at odds with students’ world views, science instruction will tend to force them to abandon or marginalise their views and reconstruct in their place new ways of conceptualising science. This is assimilation. When assimilation occurs one of two things can happen; it can alienate students from their own developed concepts of the world, or it can cause them to develop clever ways to pass their science courses without having to learn the content in a meaningful way as assumed by the school and community. Students will learn science provided it is in tandem with their world view, while there is a tendency to reject science when it is not in accordance with it.

We attempted to explore the perceptions and attitudes of students toward their everyday world and their conceptual interpretations of science (Ng et al, 2011). The study found that the number of students who indicated that they liked science related subjects also indicated that science was their least favourite subject. These students perceived that knowledge of science was directly related to the three basic sciences and did not perceive application of science, scientific knowledge or scientific skills as science. For instance, they did not perceive the building of bridges or farming as science. These students seemed to perceive science as an accumulation of knowledge but might not be able to apply it. Based on these findings and an attempt to make science more relevant to these students, we approached our research through dialogue which implies that we will put effort into being responsive to and engaging with multiple voices and perspectives. Hence argumentation on science, which will include the use of evidence and effective ways of ‘talking science’, will be the mainstay of our approach. Science and STEM education also needs to be relevant to students in terms of relating it to the everyday world and addressing controversial issues of interest to students. Reflection by students on knowledge and the different ways of knowing could generate the interest that would encourage students to make science their careers.

**Argumentation in Science**

In this research we will consider the approach of using argument to learning science. The concept of argumentation of science posits that the knowledge and cognition of science (Kuhn, 2010) should not only involve mastery of concepts but also learning how to engage in scientific discourse. As such, based on this definition of argumentation, we will include in our research strategies that will encourage the use of argumentation in the classroom. In addressing the development of argument in the science classroom, there must be an increase in students’ ability and willingness to attend to the others’ arguments (Kuhn, 2010). This has been observed to occur in two phases, the recognition of a need to attend to the others’ arguments and investing the necessary cognitive effort in doing so.

Students at the beginning stages of this form of intervention tend to focus on their own arguments which is evident in their dialogue with others. The aim is to get students to the point where they can form counterarguments where the others’ arguments are weakened. Novices in counterargument often use disagreements in response to the others’ statements but do not follow with critiques but rather with an alternative argument, leaving the others’ arguments unaddressed (Kuhn, 2010). Keeping in view difficulties students have when using argument as a learning strategy, we will, in this research, use students’ funds of knowledge as an initial step to help students develop their thinking skills further. The use of students’ funds of knowledge to encourage deep learning of scientific knowledge and concepts will be enhanced using the dialogic approach and inquiry based science education (IBSE).

**Students’ Funds of Knowledge**

When students become alienated from science, Larson (1995) found that they will device new ways of learning it. This often results in surface learning and causes a dislike for the subject. As a result, students develop feelings that science is impractical, unfamiliar, and in contradiction with their everyday beliefs and practices (Zain&Rohandi, 2009). Further to this, it was found that when funds of knowledge are incorporated into lessons, there is a development of sustained interest in science (Zain, Rohandi&Jusoh, 2010).

In order for students to tap into their funds of knowledge, it is necessary to abandon the more content driven teaching of science to one that is context bound. This means that students’ cultural orientations would be considered as an important and valuable aspect of learning science. There should be a ‘cultural border crossing’ (Aitkenhead, 2006) where students have the potential to gain perspectives that allow them to learn from both their home culture and school culture without becoming overly embedded in one or the other. In order to
The research team for the Science Education in Diversity (SED) also introduced the dialogic approach to teaching science.

**The Dialogic Approach to Teaching Science**

The dialogic approach attempts to find different but compatible perspectives on a common object while at the same time generating new questions to carry the study further (Wegerif et al., in press). In this approach the truth emerges as a result of a course of dialogue rather than as a single utterance. This is referred to as a ‘polymorphic truth’ (Van Eijck, 2012) where there is polymorphic action found across any voice in the dialogue.

In such an approach, the focus will be on setting the context for students before introducing the content to be learned. This will help students bridge what is already in their funds of knowledge with new content to be learned. It enhances the richness of information which can then be applied to their daily lives. This will, in turn, help sustain their interest in science for further explorations in the future (Zain& Rohandi, 2009). Added to this, the dialogic approach can also enhance teacher learning and refine their skills in the classroom. This is achieved through dialogue between the teachers, their students, and the researchers. The dialogic process is further enriched by the adoption of Inquiry Based Science Education (IBSE) in the classroom.

**Inquiry Based Science Education**

The premise of IBSE includes the following elements (Woolfolk, 2010) in which students:

- formulate hypothesis to explain and solve problems
- collect data to test the hypothesis
- draw conclusions
- reflect on the original problem and the thinking process needed to solve it.

In this approach there are several assumptions made on how students learn. Students are expected to be able to work things out for themselves starting from their own pre-existing ideas. In IBSE students take responsibility for their own learning and eventually develop the ability to correct any mistaken concepts they have during the learning process. The teacher only acts as a facilitator and is responsible for setting up the context for students.

In IBSE, activities centre on making concepts real for students so that they can see them as relevant. This form of learning allows students to learn content and process at the same time. Added to this, they also learn the inquiry process which is basically how to solve problems, evaluate solutions, and think critically (Lertwanasiriwan, 2009). However, it must be noted that there are problems to implementing this approach in Malaysian schools. This is because of the more teacher centred classrooms that exist in schools today (Azian & Foo, 2009) where transmission of knowledge from the teacher to student still prevails.

**Design Based Framework**

In this part of the research we need to observe what is actually happening during the intervention. The refinement and development of the design based framework will follow a cycle of evaluation, design and refinement. In this cycle a process of programme design refinement will follow a cyclical path of implementation and evaluation, followed by analysis of the data obtained. Analysis of data would reveal areas in the research that need to be further refined, and through a process of reflection new strategies will be developed to address the issues, thus allowing the cycle to continue.

For the purpose of our research, we chose to study the reactions of students and teachers to various interventions we implemented in the study classrooms through the reflective journals of teachers, as well as, classroom observations of their lessons. The reflective practice required that a task of teaching be planned, enacted, evaluated and, subsequently, reconceptualised. The reconceptualization then becomes the take off point for more effective planning and enacting of the next task (Cohen, Manion, & Morrison, 2000). As such, the model we will adapt for use in our study is the Model of Reflective Practice (University of Exeter, 2010) following the principles of the research framework adopted in SED WP4. This model consists of four paradigms: plan, act, evaluate, and reconceptualise.

It was expected that the teachers in the study would draw on all of these four paradigms to help them prepare their lessons during the intervention period. These teachers will be influenced by their conceptions of science and by what they have heard and read about the teaching and learning process. Their personal preferences and
their personal theories about teaching and learning will also play a part. Other factors may also influence the way teachers react to situations that happen in the classroom, such as, the constraint imposed by their immediate environment and support personnel.

Using the Model of Reflective Practice as the framework to guide the process of reflective teaching, we will attempt to answer the following research questions (RQs) underpinning this study:

1. To what extent is the Model of Reflective Practice applicable in the Malaysian context?
2. To what extent does the Model of Reflective Practice, which focuses on IBSE, the dialogic, constructivist and collaborative approaches, support the development of interventions which improve students’ understanding and learning of science?
3. Are there any significant differences in the influence of the intervention on the genders and diverse backgrounds of the cultural groups in terms of ethnicity and religion?

In an attempt to maintain impartiality on the part of the researchers, schools that gave a typical representation of the student population in Malaysia were chosen. This is done in order to properly account for the divergent nature of the population so that our findings may be more generalizable. In order to maintain confidentiality, all data collected from students and teachers were handled by the researchers and their assistants only. All participants in the study were told they could withdraw at any time during the study. We acknowledge that a complete transformation in the manner in which the teachers taught using the reflective practice model was not possible, and its sustainability in the classroom is also questionable. However, it is hoped that the teachers, with further practice using this method, will be able to bring about a sustainable change in their teaching strategies and approaches, resulting is a permanent change in the learning habits of their students.

There is diversity in Malaysian classrooms both culturally as well as ethnically. Hence Malaysian students bring with them their own understanding and interpretation of science which accounts for the diverse ways they use to learn science. Their funds of knowledge are also diverse. The design based framework will specifically allow learning to take place in groups of students from diverse backgrounds through the use of dialogue between the teacher and students. This dialogic approach allows students’ to continuously build their funds of knowledge leading to a deeper understanding of their conceptual knowledge of science. This framework further allows students to reconceptualise their knowledge which results in their building of new funds of knowledge about science.

**Methodology**

In this paper we will present two of the four schools that were originally chosen for the study. One of them is an urban secondary school in the state of Selangor and the other is a rural secondary school in the state of Perak. The urban secondary school was a Chinese Independent school made up of a majority of Chinese and the rural secondary school was made up of all races with a majority of them Malay and Chinese.

We negotiated our entry into the schools through the Ministry of Education and local school districts in each state. Through several meetings and interviews with the principals, we obtained permission to work with the science teachers involved on their lesson plans and to conduct classroom observations for a period of five weeks, broken into two periods of one week and three weeks each. Added to this, we also obtained permission to administer a survey to collect data on students’ perceptions of themselves and the Malaysian-Based Basic and Integrated Science Process Skills Inventory (MBBISPSI).

The SED survey, developed by the members of the SED team, was used to obtain information about students’ perceptions of themselves, their beliefs, and their learning abilities with regard to science. It consisted of questions that were divided into five sections. The sections were: about you; what you like to do; things you do in your science lessons; what you believe; and some more about you. This survey was administered at the beginning of the intervention period by the researchers and teachers involved in the intervention. The MBBISPSI developed by Ong, Wong, Yassin, Baharom, Yahaya and Said (2011) was administered to all the students involved before and after the intervention. There were two versions of the MBBISPSI, one for primary students (a simplified version) and the other for secondary students. We used the secondary school version which consisted of thirty questions covering the seven science process skills included in the primary school version, together with another five areas: interpreting data, controlling variables, operational definitions, making hypothesis, and experimentation. The survey was administered to students together with the MBBISPSI before the intervention period. The MBBISPSI was again administered to students after each of the two intervention periods.
The teachers involved in the intervention were appointed by their school principals to participate in the study. They were given a series of workshops where the teaching strategies were introduced to them. These workshops also allowed them a platform to voice their concerns and discuss them with the researchers.

To gather further data, arrangements were made for the researchers to visit the classrooms of the two teachers involved in the intervention. There were three researchers involved with the teacher observations. Two researchers were assigned to the school in Selangor, and one was assigned to the schools in Perak. The various lessons were also videotaped for further analysis at a later time. Relevant notes were taken by the researchers while observing the lessons to be used for data analysis. Before every observation session, the teachers sent their lesson plans to the researchers. These plans were reviewed, and feedback was given to make improvements, if necessary, before being used for the lesson. After every lesson, the researcher discussed the lesson with the teacher. The teachers were also asked to keep a log of their reflections on their lessons and students’ reactions to these lessons.

Profile of the Two Schools

In order to maintain confidentiality, each school was given a pseudonym. The two schools were named KL School and MN School. The following table gives a general overview of the schools and classes involved in the study:

<table>
<thead>
<tr>
<th>Name of School</th>
<th>KL</th>
<th>MN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Urban</td>
<td>Rural</td>
</tr>
<tr>
<td>Type</td>
<td>Chinese Independent</td>
<td>National Type Secondary</td>
</tr>
<tr>
<td>Student population</td>
<td>Almost 100% Chinese</td>
<td>45% Chinese, 45% Malay and 10% Indians</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>Middle and upper middle class; families educated</td>
<td>All socioeconomic classes. Many are from poor families</td>
</tr>
<tr>
<td>Intervention group</td>
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<td>Form 2</td>
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</table>

Table 1 Summary of the Intervention Schools

At the initial stages of the intervention all participating students in the four intervention schools were given two pre-tests. The first is a questionnaire to obtain some background information of the students and a profile of their attitudes and perceptions towards science and learning science and the second was on scientific process skills. The second was the MBBISPSI for primary and secondary schools. These tests were again administered as post-tests after the two intervention periods.

It must be noted that the research team could not choose the topics that were taught during the intervention periods. We had to work with the teachers on the topics they were teaching. As such, the case studies are more reflective of real life interactions of students and teacher with the content and context of the topics that were taught.

KL School

Location and Profile of the School

This school is an urban Chinese independent high school with a population of 5000, mostly from the Chinese ethnic group and supported by the community. The students come mainly from middle to upper middle class families with a small percentage of them from poor families. More than half of them are from educated families. These students attend classes from morning until 3:30 in the afternoon. There are extra tuition classes available after school for these students as well. With such a learning environment, students, especially those in the better classes, are self-motivated to learn. However, even in such a school there are weaker classes where students do not seem to want to learn. Many of them are motivated to learn because of pressure from their parents and peers. They are driven by competition among themselves as well as a fear of failure.

Profile of Mr G

Mr G is a science graduate with more than ten years working experience in the industry prior to joining KL school as a science teacher. He is in his mid-forties and has been teaching science in the school for the past ten years. Mr G does not have formal teacher training and most of his teaching skills are self-taught.
Intervention

The intervention for KL school was carried out in two stages. The first stage started with the administration of the pre-tests followed by one week of intervention after which the post tests were administered. The second stage consisted of a three week intervention period.

During the intervention periods, Mr G taught students about the laws of light, reflection and refraction of light. Students were not able to carry out hands-on experiments as there was limited apparatus available. Mr G demonstrated the experiment at the front of the class. Students were given a worksheet to answer after the demonstration. Although Mr G had his reservations about the effectiveness of using the dialogic/IBSE approach in class, he started using this approach in his second lesson. The students were separated into ten groups and were allowed to carry out experiments with plane mirrors. One of his main concerns with using group activities was the noise that is generated, since students would not be in a classroom setting due to a lack of facilities in the school. The students were more participative in class and were willing to answer questions posed by Mr G. The students were described as enjoying their science lessons, especially when they were carrying out the experiments.

Students’ Interest Towards Science

Paired samples of the t-test showed a statistically significant decrease (in our scaling a smaller number indicates a liking for science) in SED Survey scores for students from KL School who liked their science lessons from Pre-test Question 3b(1-3) (M=2.03, SD=0.36) to Post-test 1 Question 3b(1-3) (M=1.79, SD=0.52), (t(38)=2.30, p<0.05). This means that students’ interest in their science lessons increased after the first intervention period where the dialogic/IBSE approach was introduced. There was also a positive correlation of 0.29 for students liking science after the first intervention period.

A paired samples of the t-test also showed a statistically significant decrease in SED Survey scores for these students who like science because they find science easy from Pre-test Question 3c4 (M=2.28, SD=0.69) to Post-test Question 3c4 (M=1.95, SD=0.56), (t(38)=2.06 p<0.05).

A comparison of Pre-test and Post-test 2 showed an overall decrease in the mean scores of Post-test 2 in all of the paired samples. This indicates that there is an increase in liking of science among all the students after the second intervention period.

There were differences between the genders for interest toward learning science. Generally boys like science lessons more than girls based on the mean scores from the SED Survey. There was an overall decrease in the mean scores towards Question 3c2 ‘liking science lessons about what the world is made of’ for the girls but not for the boys after the first intervention period. Paired samples t-test showed a statistically significant difference for this question between the scores of girls (M=0.27, SD=0.94) and boys (M=0.47, SD=1.00) when Pre and Post-test 1 were compared, (t(37)= -2.38 p< 0.05. There was also a significant difference between the two genders for Question 3d3 ‘like planning a science experiment and then carrying it out’. Paired samples t-test showed a statistically significant difference for this question between the scores of girls (M=0.27, SD=0.83) and boys (M=0.00, SD=1.06) when Pre and Post-test 1 were compared, t(37)= -2.77, p< 0.05. (Data obtained from Attachment 3)

Students’ Basic and Integrated Science Process Skills

The results from the MB-BISPSI showed that there were improvements in the ISPS after Post-test 1 in eight out of the twelve scales. Out of the eight scales, it was found that two of them had significant improvements. These were communicating skills and defining operations. A paired samples of the t-test also showed a statistically significant increase in the MB-BISPS scores for communicating skills from Pre-test (M=1.63, SD=0.83) to Post-test 1 (M=2.07, SD=0.91), (t(40)=2.51p<0.05). A paired samples of the t-test also showed a statistically significant increase in scores for defining operations from Pre-test (M=1.88, SD=0.93) to Post-test 1 (M=2.29, SD=0.87), (t(40)=2.07 p<0.05). However, there was a slight drop in the scores from Pre-test to Post-test 1. (Data obtained from Attachment 6)

When the ISPS scores were analysed for gender differences, it was found that the boys scored better than the girls for eight of the twelve scales. Paired samples t-test showed a statistically significant difference for making hypotheses between the scores of girls (M=1.50, SD=0.80) and boys (M=2.11, SD=0.94) when Pre and Post-test 1 were compared, t(39)= -2.14, p< 0.05. After the intervention, the girls’ scores were higher in ten out of twelve ...
scales. (Data obtained from Attachment 6), it must be noted that results from Post-test 2 data showed a decrease in the ISPS scores. This could be attributed to test fatigue as the students had to answer questions from the same test multiple times.

Students’ Comprehension of Content Material

Mr G monitored students’ comprehension of the content material that he taught using tests as part of the assessment criteria. There was a slight improvement in the average test score, as well as the pass rates of the students, as shown in Table 2 below.

<table>
<thead>
<tr>
<th>Date of test</th>
<th>3-Feb</th>
<th>23-Mar</th>
<th>27-Apr</th>
<th>12-May</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average mark</td>
<td>60%</td>
<td>67%</td>
<td>68%</td>
<td>63%</td>
<td>66%</td>
</tr>
<tr>
<td>Percentage of students passing</td>
<td>62%</td>
<td>84%</td>
<td>85%</td>
<td>71%</td>
<td>78%</td>
</tr>
</tbody>
</table>

Table 2 Average test scores and pass rates of students from KL School

Discussion

KL school caters to students from upper middle class urban families. The school is a traditional Chinese medium school where students are governed by strict rules and regulations which they are expected to follow. The teaching of the syllabus is strictly adhered to and the school system is highly examination oriented. Achievement of good grades in examinations is highly valued by both teachers and students.

As the school is teacher centred in its approach, the implementation of the dialogic/IBSE approach proved challenging. The science facilities in the school were inadequate and not available to be used for the intervention class. Mr G, in consultation with the research team, had to design experiments that only required everyday materials that were easily obtainable. There was also a problem with availability of space in the classroom for carrying out group work. The group activities were also noisy and proved to be a challenge for Mr G to keep the noise level manageable. Mr G was open to ideas from the research team and ready to implement suggestions given to improve the effectiveness of his lessons. The results of the tests and classroom observations showed that there was perceivable improvement in students’ liking of science during the intervention period. The increased interest in learning science was indicated by a decrease in their mean score which indicates liking learning science and having an interest in learning science. The results also indicate that boys are more interested in learning science than girls. This approach also seemed to influence the learning of science among girls more than boys. This is evidenced by the girls scoring higher in ten out of twelve scales for science process skill in Post-test 1 after the first intervention.

There was an overall improvement in the ISPS scores which indicate students had improved their understanding of science and science process skills. There were two scores that were especially significant for communicating skills and defining operations. The results seem to imply that the strategy was effective in improving students’ understanding of science as well as learning of science. The drop in scores from Post-test 1 to Post-test 2 may be the result of test fatigue as knowledge acquired should remain constant or increase. The students had to answer the same questions for the Pre-test as well as Post-test 1 and 2. It must be noted that this approach may be helpful among girls for learning science, but there are limitations to its implementation. The teacher plays an important role in making the approach a success. More time is needed for planning of lessons to incorporate essential content material for the curriculum. This is not an easy task given the time constraint on the teacher and the need to prepare students for examinations.

MN School

Location and Profile of the School

This is a rural school located forty kilometres from the nearest big city. It is made up of 90% Malay and Chinese students with the rest Indians. Students come from a wide socio-economic status with a majority of them in the poor category. The school has an enrolment of 800 students with about 200 of them owning computers. Of those owning computer, however, all may not have internet access. This school is situated in an economically dead town and many residents have migrated to other larger cities to earn a living, leaving their children to their aged
parents to look after. Some of these students are from broken home as well. As a rule, among the Chinese there is a tendency for parents to encourage their children to attend after school tuition classes to help them cope in school. The Malay students, on the other hand, enjoy fishing and spend too much of their time on this past time rather than studying. It was found in the previous year that approximately 2% to 3% of the students in this school cannot read. A majority of the classes in this school are taught using the teacher centred approach. There are a total of five Form 2 (8th Grade) classes in the school and one class was chosen for the intervention.

Profile of Mr H

Mr H is a science graduate and is a trained teacher in science. He has sixteen years of experience in teaching and has taught in his current school for the past eight years.

Intervention

Intervention was carried out in two stages for MN School. During the first intervention period the research team managed to observe two classes. For the second intervention period three classes were observed.

Mr H taught reflection of light and blind spots during the first intervention period. As most of the classes were taught using the teacher centred approach, the students had difficulty adapting to the dialogic/IBSL approach. Mr H also experienced problems conducting the experiments and getting the students to understand what was expected of them. After extensive discussions with the research team on the implementation of the dialogic/IBSE approach, Mr H noted in his journal that he had initially given poor instructions to students which resulted in them not being able to follow the instructions. Time management during the lesson also proved to be a problem for Mr H as he was not able to complete his lessons. It must be noted that the language barrier that the students experienced when learning science in English was a challenge for Mr H, as he had to teach them using both English and Malay.

Students’ Interest Towards Science

Most of the students in Mr H’s class voiced that they liked the dialogic/IBSE approach because of the experiments they carried out during the lessons. They also liked the interaction that occurred during class which gave them more opportunities to interact with their teacher and peers. About 90% of these students preferred to have the subject taught in English. However, about 20% of these students had difficulties understanding the lesson because of a language barrier as they were not fluent in English. About 4% of these students wrote that they did not like science as a subject.

Most of the items on the SED survey showed a lower post-test 1 mean score compared to the pre-test. This means that students had a better perception about science and learning science after the intervention period. A paired samples t-test showed a statistically significant decrease in the SED Survey scores for liking science because it has clear answers as shown in Pre-test Question 3c3 (M=2.27, SD 0.60) to Post-test 1 (M=1.88, SD 0.52), t(22)=3.08, p < 0.05.

The tests results after the second intervention period showed a decrease in the mean scores for approximately half of the items for liking science and liking to learn science. It would seem likely that a longer intervention period could provide a statistically more significant results, but the overall trend showed greater liking for learning science.

The ISPS scores for the girls were better than the boys after the first intervention period in ten out of the twelve scales. However, the results for Post-test 2 showed a decrease in the scores which could be a result of test fatigue.

Discussion

Some of the equipment in MN School looked dated and worn. Many of the physical facilities were not well maintained and the school did not seem to have an environment that was conducive for learning. The science laboratories had some equipment that the teacher could use for demonstrations, but there were not enough for every student. Mr H was open to using the dialogic/IBSE approach with his students. He perceived this method could be used to teach some of his weaker students and encourage them to participate in class.

It must be noted that Mr H had problems getting his class to fully cooperate with him during science lessons. He had commented on how some of the students were ‘very naughty’ and deliberately answered his questions
incorrectly. Added to this, Mr H also highlighted the fact that many of these students came from broken homes or had one or both parents working out of town which caused delinquency to be more common among his students.

Although Mr H was open to the idea of using the dialogic/IBSE approach, the impact of this method would be questionable since some of his students might not understand the concepts being taught because of the language barrier and might not be able to learn well until they master the language of instruction. In an informal survey which Mr H carried out after the second intervention, he found that students liked to learn science using the IBSE approach. His students suggested that science classes could also be conducted away from the classroom.

From his own observation Mr H noted that most of his students had difficulties using the apparatus in the science laboratory, building hypothesis and determining variables. Students also had difficulty writing reports on the experiment they had carried out. Even though these students are experiencing difficulties learning science, the scores from the SED survey seem to indicate that there is an overall improvement in their interest and positive perceptions of science after the intervention period. This would imply that the dialogic/IBSE approach is effective to a certain extent in generating interest among lower achieving students.

**Conclusion**

In order to address each of the research questions that we have posed for this study, we will attempt to answer them in the following discussion.

**RQ 1** To what extent is the Model of Reflective Practice applicable in the Malaysian context?

The four cases described in the previous sections seem to imply the importance of teacher withitness when applying the Model of Reflective Practice. Kounin (1970) defined this as teachers knowing what is going on in their classroom. According to Kounin, nothing, or very little, seems to get by a with-it teacher. These teachers are able to have proper timing on when and what to introduce that will stimulate the interest of their students. Tauber (2007) notes that these teachers can multitask and are comfortable having more than one activity going on simultaneously in the classroom. With the exception of Mr G, the other three teachers do not seem to have developed the withitness that will allow them to effectively implement the Model of Reflective Approach. However, the intervention periods for this study were relatively short, and with the introduction of any new strategies, allowances for teachers to adopt and adapt the practice are necessary.

The teachers showed a willingness to use new strategies, but they need a further period of guidance and adaptation before this model can be fully used in the daily lesson. This model has potential for Malaysian teachers, as it offers them a way of implementing dialogic/IBSE strategies more effectively. Their receptiveness of the model is evidenced from the reflections of the teachers which talked about the ability of this model to raise the interest of their students in science.

From the analysis of results of the pre-test to post-test 1 and 2 for the SED Survey, it would seem that students’ interest in science increased for the schools. However, it must be noted that the test scores for post-tests 1 and 2 only showed an increase in students’ interest for KL School but not for the rest. The short second intervention period may play a major part in the results obtained. It would seem that the dialogic/IBSE strategies were more effective for secondary students than primary students. This could be a result of the manner in which the strategy was implemented. The secondary teachers had more withitness compared to the primary teachers being they were science graduates and were more knowledgeable in the subject.

**RQ2** To what extent does the Model of Reflective Practice, which focuses on IBSE, the dialogic, constructivist and collaborative approaches, support the development of interventions which improve students’ understanding and learning of science?

It would also seem that teachers who specialise in science may be more motivated to make learning science more interesting. For instance Mr G and Mr H are both science graduates, and they seemed more interested in implementing the dialogic/IBSE approach than the other two teachers. Mr G, once he was guided on how to implement the approach, seemed more in favour of using it compared to the other teachers.

The process of learning must consist of three parts: affective, psychomotor and cognitive. The dialogic/IBSE approach, when used effectively, encompasses all three. Most of the teachers have no difficulties encouraging cognitive learning which mainly deals with the learning of content. However, it is more difficult to encourage
the affective learning which develops a passion for the subject to be learned. Mr G most effectively incorporated affective learning in his teaching strategies. As a consequence, he was able to generate more interest among his students. He gave students the needed independence to carry out the experiment while he prompted them with clues on how to progress with their work. Mr H was more focused on cognitive learning which was reflected in his concerns about students’ having correct answers to questions. Affective learning is important to help students develop interest in science and STEM subjects. Mr G seemed to be able to promote this type of learning which resulted in generating more interest in his students to learn science. This was observed from the interaction of Mr G with his students.

According to Duschl and Osborne (2002), science classes are often dominated by teacher-led structure that focuses on facts and follows the pattern of teacher initiation, student response, and teacher evaluation. This pattern of learning does not do well when the goal of instruction is to promote reasoning skills. Students are often given less than a second to formulate their answers which consist of single words or short phrases rather than dialogic argument. In all, the Model of Reflective Practice has, to a certain extent, aided the teachers to implement the dialogic/IBSE approach in their science classes. However, there needs to be a longer intervention period in order to determine if the approach used is sustainable. One of the teachers commented that the lessons using the dialogic/IBSE approach require more time to prepare. The extra time needed may be a deterrent for teachers with the pressing need to complete syllabuses and prepare students for examinations. Teachers may still fall back on basically teaching content as a means to meet the needs of their students.

The model used allowed students to construct their own understanding of science. This method does not dictate how students come to know about science but allow students to build new knowledge by connecting what they already know to new knowledge. This enables students to reconceptualise their knowledge and build new funds of knowledge about science. This is most suitable for students from diverse background as it accommodates all conceptual understanding of science.

RQ3 Are there any significant differences in the influence of the intervention on the genders and diverse backgrounds of the cultural groups in terms of ethnicity and religion?

From the reflective journals of the teachers and classroom observations, it would seem that the boys were more enthusiastic than the girls to participate in the science experiments. Although both genders were seen to be enthusiastic in class when the activities and experiments were carried out, the boys seem to be more active and participative than the girls.

Based on data analysis of the schools, the boys seemed to be more interested in learning science than the girls. However, only KL School had any significant improvement in student’s interest towards science after the intervention periods for two of the items. After the first intervention, the post-test showed that the girls had an increase in liking science lessons more than the boys. Significance differences were seen only for two questions: ‘I like science lessons about what the world is made of, like atoms and molecules’ and ‘I like planning a science experiment and then carrying it out’. Students’ interest in science, specifically physics, increased significantly after the new strategy was introduced and this improvement was more significant for the girls. It would seem that this strategy may be more effective for the girls. Overall, there is an increase in the ISPS scores for girls from the Pre-test until Post-test 2 based on the data available.

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References


Aligning Institutional Strategy with Technology Enhanced Learning for Pedagogic Innovation

Professor Margaret Hicks
Learning and Teaching Unit
University of South Australia, Australia
margaret.hicks@unisa.edu.au

Abstract

In today’s higher education context with an increased focus on external accountability, the student experience, and quality, institutional vision statements, strategies and priorities in teaching and learning abound. Institutions are also grappling with fast changing technologies and how technology needs to be integrated and supported within the learning environment to support innovative practice. At an institutional level these different elements can be brought together in an online education strategy. At the University of South Australia, we have been working across the institution to develop such a strategy which encompasses transformative teaching and learning practices using technologies. In doing so, we have identified five key learnings that are discussed in this paper and provide a guide to other universities who are working through these transformations.

Keywords: technology supported education, learning management system, online education strategy

Introduction

While technology enhanced learning, online learning and open educational resources have been important considerations in higher education teaching and learning for a number of years, higher education is currently experiencing an increased emphasis on these modes of learning and discussion that they will transform learning (Australian Trade Commission, 2013). In part this is due to the introduction of MOOCs (Massive Open Online Courses) that have been established primarily in the United States and are now experiencing popularity in other countries, but also to the increased access to technology that people now have. In large scale studies such as the regular ECAR study of undergraduate students, students are making sophisticated observations about how they want technology integrated into their learning (Educause, 2012). Digital technologies are transforming the way education is delivered, experienced and accessed in every way (Ernst and Young, 2012; Hill, 2012). Lowendahl and Rust (2012) in their analysis of an ‘expanding education eco-system’ acknowledge that the number of technology related choices that an institution or an individual can make is expanding and changing on a daily basis. This situation is only going to increase in volume and choice. What is important is that in terms of educational delivery and the student experience an institution is clear about the priorities and directions that it wants to take and that this drives decisions taken rather than these decisions being driven by the latest technological fad. This poses the bigger challenge of how to do this at a whole of institution level and how to ensure that institutional priorities and directions are aligned to ensure an optimal student experience.

Along-side of the increase use of technology in formal learning situations is the importance of ensuring that all students receive a quality teaching and learning experience. As noted by Coates, ‘the expansion, diversification and digitisation of higher education is creating challenges for understanding and leading students’ engagement in effective learning’ (Coates, 2013, p7). It is important that these challenges relating to student engagement are dealt with from an institutional perspective.

The position that I am taking in this paper is that technology is now core to good teaching and learning practice. It is now no longer an add-on, or optional, or something that an individual technology innovator uses in their teaching. It is part of effective teaching practice (Devlin and Samarawickrema, 2010). Just as other standard tools and elements of teaching and learning are part of all teaching and learning practice, technology also needs to be viewed as core teaching and learning practice.
It is easy to find examples where innovative practice using technologies has led to transformative teaching and learning experiences, but many of these examples are at an individual teacher, individual subject/unit level. The dilemma raised by many institutions is how to ensure this happens at a program (degree) level and ideally at a whole of institution level. This is often brought together in a strategic/policy statement such as an ‘online education strategy’ but again the importance of aligning what actually happens in the classroom (and this may be a virtual classroom) with institutional statements and policies needs to occur. At the University of South Australia we have been grappling with this issue and in moving forward have identified five key areas of learning to achieve this alignment. This paper will discuss these five areas of learning with reference to the literature more broadly and to the University of South Australia experience in particular.

**A shared understanding**

As the words captured in Figure 1 demonstrate there is a range of terminology and many different ways to describe online learning. Even under-lying single words and phrases there are multiple interpretations. We are also seeing conflations of terms developing (Guri-Rosenblit and Gros, 2011) as elements of blended modes of delivery where teaching includes a combination of face-to-face and virtual interactions with student increase in popularity.

![Figure 1: Multiple ways of describing online learning](image)

Institutionally it is important to develop a shared understanding of terms and to use these terms consistently across the institution. This is not easy when dealing with large and diverse organisations and large numbers of staff, but it is important to clarify these definitions and keep referring to them when developing practice, policy and governance. For the purposes of this paper I am using the term ‘Technology Enhanced Learning’ in its broadest sense to capture all elements of technology in teaching and learning and all modes of delivery (fully online, blended, external, and campus-based teaching).

Terminology is not the only area that requires a shared understanding. Pedagogical practices and the technical tools used to deliver teaching and learning also require consistency. The latter is normally delivered at an institutional level through the Learning Management System (LMS). There have been many critiques of LMSs and the way that they ‘lock down’ or ‘lock in’ particular practices. A good LMS will offer core functionality but will not inhibit innovation. Importantly innovation must be supported, rewarded, shared and communicated across the academic community. Advice and exemplars in good pedagogical practices need to be available to teaching staff and this approach should be well supported with targeted professional development for staff (Hicks, 2013; Owens, 2012; Devlin and Samarawickrema, 2010). It is well documented that while students are embracing technologies, teachers are much slower to be converted (Allen and Seaman, 2012).

From defining terms and using them consistently to innovative pedagogical practices and how they are supported by the tools a university uses, a shared institutional understanding of online education is essential. While this can be demonstrated through written documentation it is important that structurally this is supported and connected across different organisational areas at a faculty level and by central units.
A focus on the student experience

A quality student experience is ultimately what all higher education institutions aspire to. Most universities have some reference to the ‘student experience’ in their visionary statements. At the University of South Australia we aspire to ‘an outstanding student experience and exceptional graduates’ in our 2020 vision statement (Horizon 2020). But like the term ‘online’, the term ‘student experience’ can be interpreted broadly or quite narrowly. What is important is that in considering any online education strategy that the student must be placed at the centre and the student voice integrated where ever possible.

Reeves and Reeves (2012) have drawn on good practice literature to identify five key strategies that should be considered in any technology enabled learning environment. These include the importance of drawing on good practice principles of teaching and learning, aligning the curriculum design, establishing and maintaining cognitive, social and teaching presence in the learning environment, introducing new technologies selectively and the importance of evaluation (Reeves and Reeves, 2012, p 113). These five strategies provide a good framework for pedagogical practice and should be used and referenced in institutional practices relating to good teaching and learning.

Accountability and standardization agendas are now dominating higher education experiences and external agencies are increasingly becoming involved in making judgements about the quality of these experiences (Henard, 2010). Hence ensuring an emphasis on quality is an essential part of any institutional approach to online teaching and learning.

Given the changing external context, it is all the more important to ensure that a focus remains on the student experience, that the student voice is part of these developments and that the student is placed at the centre for any decision relating to technology.

Engagement

A critical element to a robust online education strategy is ensuring ‘engagement’ at a range of levels. The importance of ensuring that students are engaged in these practices is essential, but engaging teaching staff is also critical. This involves the ability to uncover current online practice and innovation. It is very easy within a university where teaching staff focus on the unit/subject level and where teaching staff are at all different stages on the use of technology continuum for a ‘thousand flowers to bloom’ at an individual subject level rather than taking a cohesive, holistic programmatic approach to development. This is a dilemma that many institutions face and the systems that we have in place, the size of classes and programs, and the way that curriculum is developed is often not conducive to team based approaches. Therefore there needs to be a conscious effort to focus on teaching staff engagement and making sure that these practices are inclusive.

Engagement is also important beyond people and should lead to the compatibility and integration of systems. Thus within a university/institutional setting an ‘eco-system’ that is well connected and integrated should be developed, engaging staff and students at multiple levels.

Assessing capability

It is important that a healthy education eco-system is in existence; however assumptions are often made about capabilities for online teaching and learning. We have identified five main areas for consideration that any online education strategy needs to take account of. These include:

- an assessment of staff capability
- the strength and reliability of the digital infrastructure
- ensuring that the curriculum product is well marketed, growth is considered and it is profitable
- the intersection of these approaches/developments with facilities, and
- the preparedness of students.

The need for professional development and staff support is a critical element in assuring good teaching and learning practices in any delivery mode. In most student surveys, students raise this point. There are many different ways that staff capability can be assessed and different models for supporting staff (Hicks, 2013). What is absolutely essential is that at an institutional level there is a clearly articulated approach to professional
development and training that is context specific, can be accessed flexibly and addresses different needs and expertise.

An online education strategy needs to be supported by a robust and reliable technology infrastructure. In many institutional structures responsibility for these areas are organisationally separate and information technology is the responsibility of the information technology department. What is absolutely critical for a successful online education strategy is that institutional planning for teaching and learning and responsibility for information technology are in tune and that each is taken into consideration when decisions are made at either the strategy level or in relation to infrastructure. These two areas must complement each other and work closely together.

As already mentioned technology innovation can often be a very individual pursuit. Curriculum development also can sometimes be very inward looking and often the focus is at the unit/subject level rather than at a program level. This can often be exacerbated when a program offers large choices and many electives. Ensuring a cohesive student experience becomes more difficult to oversee. In today’s competitive environment all education programs need to be assessed for their viability and ensuring that a program is well marketed, with a full assessment of its growth and profitability being essential.

Even though online teaching and learning appears to be divorced from bricks and mortar there is an intersection that needs to be considered. This is particularly important for blended learning experiences or for the student who wants to study fully online but still use the university’s physical spaces. Universities are increasingly building or transforming physical spaces that are designed for social and informal learning. Over the last fifteen years libraries in particular have seen the greatest transformation of their traditional spaces, to spaces that are more flexible and technology rich.

Although students are entering higher education with a greater preparedness and experience with technology, we have to be careful not to assume their competence in these areas. While technology is now part of nearly everyone’s life in some way the experience can vary greatly. Just as universities articulate ‘tertiary academic literacies’ that must be learnt, it is important to have an understanding of the digital literacies that are required and to ensure that students have access to learning these literacies either through independent resources or embedded as part of their curriculum experience.

Leadership support, policy and governance frameworks

In taking all of the above elements into account, universities can develop well crafted ‘strategy’ statements. However transforming these into living actions is often more challenging. Three elements can assist towards this. The first includes strong leadership support, especially senior leadership understanding and commitment to what is trying to be achieved. Having senior staff who champion and understand these decisions is critical. The second element involves building strategies into policies and practices. This may be seen as restrictive or the time taken to do this impacts on innovation, but what is important is getting the balance right. Organisationally there needs to be some structure around these developments, but not so structured that it restricts innovation. Finally, having the governance frameworks in place to ensure that these policies are assured and implemented is the third element. The requirement may sound quite bureaucratic but if as an institution change is trying to be achieved mechanisms need to be in place through a well-supported environment with leadership from the senior levels.

Conclusion

The need for good strategic planning is often not questioned and it is well acknowledged that this is an important practice in the current higher education environment especially with an increased emphasis on quality agendas. It is important to be proactive rather than reactive to external forces. Shah (2013) says that good strategy development:

provides confidence to staff, students and other stakeholders that the university and the senior management team are aware of the challenges, and that the strategy aims to build on current strengths and take advantage of the current and predicted environment. Strategy ensures trust between the university leaders and its stakeholders that the institution has a planned future with clear strategy, resources, people and systems and processes to overcome difficult times. (Shah, 2013, p28)

Universities and institutions of higher education abound with documentation at all different levels in the form of strategies and plans. The inter-connectedness of these strategies and plans is also an important consideration.
But a written plan that can be easily accessed by the university community is the first step in a bigger planning process. While there is a need to ensure that these strategic plans are well developed, constructed and consulted, what is more important is that they are well implemented. Evidence of implementation and monitoring is much harder to find than the original documentation.

In today’s higher education environment it can be demonstrated that individual institutions need an online education strategy that is part of a broader teaching and learning strategy or interconnected. The success of any strategy is its implementation. The development of a strategy can be an important part of its implementation and at the University of South Australia we have identified five key learnings to assist in that process. They include the need for a shared understanding of terms and pedagogical practices, a strong focus on the student experience, engagement across the whole institution, assessing current capability to identify gaps for development, and having strong leadership support with a robust policy and governance framework. But the real challenge for the success of a strategy needs to be its evaluation and these five elements of learning in developing a strategy will provide an initial framework for that evaluation activity to take place.

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References


Ernst and Young (2012). University of the future: A thousand year old industry on the cusp of profound change.


Horizon 2020, (2011). University of South Australia

Lowendahl, J., & Rust, B (2012). The Expanding Education Ecosystem: A World of Choice, Gartner

Owens, T (2012). Hitting the nail on the head: the importance of specific staff development for effective blended learning, Innovations in Education and Teaching International, 49(4) November, 389-400

Reeves, TC., & Reeves PM (2012). Designing Online and Blended Learning in Hunt and Chalmers University teaching in focus, ACER press, Victoria, 112-127

Shah, M (2013). Renewing strategic planning in universities at a time of uncertainty, Perspectives: Policy and Practice in Higher Education, 17(1) 24-29
Leadership Style and Learning Organization in a Private Higher Education Institution in Malaysia

Geeta Ann a/p Sulamuthu
Centre for Language and Compulsory Subjects
Sunway College Johor Bahru, Malaysia
geetas@sunway.edu.my

Priya a/p Sulamuthu
Centre for Language and Compulsory Subjects
Sunway College Johor Bahru, Malaysia
priyasu@sunway.edu.my

Abstract
Continual learning has always been essential to the ongoing success of organizations. The purpose of this study is to examine the relationship between transformational and transactional leadership styles and learning organization. Besides that, the study also intended to identify the most appropriate leadership style that contributes to learning. The research was conducted at one of the Private Higher Learning Institutions in Malaysia. About 60 lecturers participated in this research. Two research instruments were used to obtain the data. The multifactor leadership questionnaire (MLQ) developed by Bass is used to measure leadership style practiced by the department heads within the organization. In addition, the five disciplines proposed by Senge are used to measure the dimensions of learning organization. The data collected were analyzed using the descriptive statistics which are the mean, Pearson correlation coefficient and the multiple regressions. The results show that both transformational and transactional leadership styles have positive and significant relationship with learning organization, which means the more the leaders practice transformational and transactional leadership styles, the more learning will take place in the organization. The results further explain that the leaders, in fact practice more of transformational leadership compared to the transactional leadership style. Besides that, the study has proved that the transformational leadership style contributes more to learning in the institution. Based on the results obtained, the researcher has made a few recommendations to the institution concerned and also for future researchers who might be interested to further their study in transformational and transactional leadership styles.

Keywords: Private Higher Education Institution, Leadership, Learning Organization, Lecturers

Introduction
Today, possessing knowledge and having the ability to use knowledge in a world-wide arena is critical to personal and societal advancement. Likewise, having a skilled and globally competitive workforce is perhaps the most important ingredient to any organization’s competitiveness in the world where competitors can come from next door or around the world. Any entity that does not support an environment that attracts, sustains and retains creative, imaginative, and globally resourceful individuals will eventually fall behind. The role of higher education in such nurturing is most apparent as universities and colleges are considered by many to be the primary suppliers of such individuals (Eden, 1980). As such, the leaders at higher learning institutions are being held accountable for how well teachers teach and how much students learn; (Sergiovanni, 2001; Dinham, 2005) and are essential for high-quality education (Fullan, 2002).

Leadership effects appear to be mostly indirect at higher learning institutions. That is leaders influence student learning through the enhancement of learning processes into teachers, in which teachers routinely share their learning with students and continuously improve their ability to teach well. (Leithwood and Riehl, 2003; Hallinger, 2003; Voulalas and Sharpe, 2005).
Feng (1997) indicates that leadership is the factor to promote learning in organization. As such, leaders can create organizational structure and shape up the organizational culture to result in influence through various affairs, actions and service; thus leadership actually affects the learning organization.

The learning organization has been given many definitions with the mostly widely accepted definition by Senge (1990) who described a learning organization as “organizations where people continually expand their capacity to create all the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free and where people are continually learning to see the whole together.”

Most higher education institutions have clear mission to offer a high quality learning experience to all their students. The performance of academic staff both as teachers and managers, determines to a large extent, the quality of the students experience of higher education and has a significant impact on student learning and thereby on the contribution that such institutions can make to society.

**Literature Review**

**Leadership**

Prewitt (2003) identifies leadership as the process of persuasion and example by which an individual induces a group to take action in accord with the leader’s purpose or the shared purpose of the group. This view is supported by Cecil (2002), who states that a leader can be defined as the one who prompts life in the organization and the one who insures the stability and the persistence of the organization in the goals it was established for.

**Transactional and Transformational Leadership**

Burns (1978) distinguished between ordinary (transactional) leaders, and extraordinary (transformational) leaders.

A transactional leader was someone “who approaches followers with an eye to exchange one thing for another: jobs for votes, or subsidies to include for campaign contributions” There are three (2) components of transactional leadership (Bass, 1990):

i) Contingent reward
This is a traditional transactional style, where a leader discusses with followers what is required and clarifies how these outcomes are to be achieved and the reward they will receive in exchange for their satisfactory effort and performance.

ii) Management-by-exception
This is a form of leadership in which the leader intervenes, often reluctantly, only if standards are not met and only take action after rules have been broken or mistakes are “brought to their attention” (Bass, 1990).

According to Bass (1990), transformational leaders take their subordinates well beyond their day to day work dealing so that subordinates begin to realize their own potential (Burns,1978). There are four (4) aspects which represent the behavioral components of transformational leadership:

i) Idealized influence is about leaders building confidence and trust and providing a role model that followers seek to imitate (Bono & Judge, 2004; Crawford et al., 2003).

ii) Inspirational motivation is about leaders making clear the appealing future, offering followers the opportunity to see meaning in their job and challenging them with high standards. This might be achieved through motivational speeches and conversations and other stimulating team work (Judge & Piccolo, 2004).

iii) Intellectual stimulation involves arousing and changing followers’ awareness of problems and their capacity to solve those problems (Bono & Judge, 2004). They stimulate followers by persuading them to propose new and controversial ideas without fear of punishment or ridicule (Hoyt & Blascovich, 2003).

iv) Individualized Consideration involves responding to specific needs of followers to ensure they are incorporated in the transformational process of the organization (Simic, 1998). This might take expression, for example through expressing words of thanks or praise, fair workload distribution among staff, coaching and mentoring (Bass, 1990).
Learning

Senge (1990), defines learning organization as, “organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together”. He identified five (5) basic disciplines or components of a learning organization:

i) Systems thinking is associated with seeing the bigger picture and understanding the interrelationships of a system. It acknowledges that organizations are complex systems composed of many inter-related components, and that it is very important to understand how the key components dynamically interact with each other to give life to the system that they comprise.

ii) Mental models are the assumptions and generalizations that influence how one understands and interprets the organization. It is therefore important for an organization to foster openness among its people while providing them with the right direction in order to prevent mental models from limiting the organization's ability to put new ideas into practice (Rowley and Gibbs, 2008).

iii) Personal mastery is the discipline of an individual being able to continuously clarify and deepen his personal vision, focus his energies, develop patience, and openly and honestly see reality as it exists. Individuals must therefore strive to learn and live life from a creative rather than reactive perspective.

iv) Shared vision is a vision that many people are truly committed to, because it reflects their own personal vision. Leaders must translate their personal vision into shared vision. Shared vision is vital for learning organizations because it provides the focus and energy for learning.

v) Team learning is the process of ‘thinking together’, wherein its members suspend personal assumptions and enter into a state of genuine group awareness and collective thinking. In other words, people need to be able to learn together, so they can act together.

Conceptual Framework

Methodology

This study of examining the relationship of transformational and transactional leadership with learning organization is conducted in the form of descriptive research. For the purpose of this research, the researcher used the structured questionnaire as a technique to capture and analyze the data. Dimensions of the transformational and transactional leadership styles are examined based on theories of leadership introduced by Burns (1978). The transformational leadership style are examined based on four dimensions (Idealized Influence, Intellectual Stimulation, Individualized Consideration and Inspirational Motivation), whereas the
transactional leadership style will be examined based on two (2) dimensions (Contingent Reward and Management-by Exception).

As for the dependent variable, five (5) components; Personal Mastery, Mental Model, Shared Vision, Team Learning and Systems Thinking are examined. This is based on the learning organization theory introduced by Senge (1990).

Primary data was collected through the distribution of questionnaires to the lecturers (60). A three-part questionnaire will was used as the instrument in collecting data for this research. Part 1 (Respondents’ Profile) is made up of five (5) questions about the respondents’ profile with regards to their gender, marital status, age group, highest academic qualification and length of service in that institution.

Part 2 (Measure of leadership style) consists of a set of questions with five-point Likert scale ranging from (1) “strongly disagree” to (5) strongly agree testing both the leadership styles, respectively transactional leadership and transformational leadership. The multifactor leadership questionnaire (MLQ) developed by Bass (1985) is used to measure leadership style. Questions contained in the multifactor leadership questionnaire are divided into six components that measure respectively the transformational leadership dimension and transactional leadership dimension. The respondents, in this study the lecturers, should assess the frequency of each leadership style observed by them according to the five-point Likert scale.

Part 3 of the questionnaire consists of items with five-point Likert scale ranging from (1) “strongly disagree” to (5) strongly agree testing the dimensions of learning organization. The five disciplines proposed by Senge (1990) will be used to measure the dimensions of learning organization. Questions contained in this part of the questionnaire are divided into five factors respectively the systems thinking, mental models, personal mastery, building shared vision and team learning.

Each item in the learning organization questionnaire is intended to determine if the lecturers in the institution considered that they are working in a learning organization. The Statistical Package for Social Science or SPSS is used in this research in order to analyze the data collected. Data collected are coded, processed and analyzed to interpret the results. Table below illustrates the analysis methods which are used in this research. The data obtained was analyzed using the quantitative analysis method. The researcher analyzed the demographics, the level of leadership styles and learning organization using descriptive statistics such as mean score, frequency and percentage. Whilst, the relationship between the leadership styles and learning organization was then analyzed using the Pearson correlation coefficient analysis. Lastly in order to determine the leadership style and dimensions that contributes to high learning, the researcher used the multiple regression analysis method.

Findings

The major findings of this research are summarized in this section. The summarization is divided into four parts consisting of the followings:

1. The level of transformational and transactional leadership styles.
2. The relationship between transformational and transactional leadership styles with learning organization.
3. The relationship between the dimensions of transformational and transactional leadership styles with learning organization.
4. The most appropriate leadership style that contributes to high learning.

Objective 1 seeks to identify the level of transformational and transactional leadership styles practiced by the department heads. The lecturers apparently perceived that their department heads practice high level (mean 4.25) of the transformational leadership and a moderate level (mean: 3.61) of the transactional leadership style at work place. However, by comparison, there was not much difference in the perception between the both the leadership styles which indicates that the department heads practice both the leadership styles frequently. The finding is consistent with Bass (1985) who believed both types of leadership, transformational and transactional, are needed for the maintenance and growth of complex organizational systems. He added that though transformational and transactional leadership are conceptually different, both the leadership can be displayed by the same individuals in different amounts and intensities.

Objective 2 seeks to examine the relationship between the transformational and transactional leadership styles with learning organization. In addition to that, the researcher also identified the relationship of each dimension
of both the leadership styles with learning organization. Findings in this research reflect that the governing leadership style in this organization is of a mixture of both transformational and transactional leadership styles ($r=0.665$, $p<0.05$). This value indicates a moderate positive relationship between both leadership styles and learning organization. However, the study also proves that the department heads appear to be displaying more of the transformational leadership style ($r=0.627$, $p<0.05$) compared to transactional leadership style ($r=0.614$, $p<0.05$). According to Lim, B(1997), leadership is the only means through which an organization can transform into a learning organization. Furthermore, Bass (1985) believes that both transformational and transactional leadership styles are essential for the continuation and expansion of an organizational as a whole. Nevertheless, the department heads should continue being a model, coach and mentor to their followers in order to further enhance learning at this organization.

Upon analyzing the relationship between transformational and transactional leadership styles and learning organization, the relationship between the dimensions of transformational and transactional leadership styles and learning organization was analyzed. The aim was to examine if there is a profound relationship between transformational and transactional leadership dimensions and learning organization. The dimensions of transformational leadership style are idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. Whereas, the dimensions of transactional leadership style are contingent reward and management by exception.

The finding points out that, among the six dimensions of transformational and transactional leadership, the inspirational motivation dimension of transformational leadership has the strongest relationship with learning organization ($r=0.747$, $p<0.05$). This is followed by contingent reward dimension of the transactional leadership which has correlation coefficient value of ($r=0.673$, $p<0.05$). Besides that, significant relationship is also seen between management by exception ($r=0.543$, $p<0.05$) dimension of the transactional leadership and idealized influence ($r=0.532$, $p<0.05$) dimension of the transformational leadership with learning. However, it is also noticed that there is no significant relationship between intellectual stimulation ($r=0.012$, $p>0.05$) and individualized consideration ($r=0.015$, $p>0.05$) dimensions of the transformational leadership style and learning organization.

Hence, it can be concluded that inspirational motivation and idealized influence dimensions of the transformational leadership have moderate to high positive relationship with learning organization, while there is no significant relationship between intellectual stimulation and individualized consideration with learning organization. There is also moderately positive relationship found between contingent reward and management by exception dimensions of the transactional leadership style and learning organization at the institution.

The last objective is to examine the most appropriate leadership style that contributes to learning in the institution. The researcher used multiple regression statistical method in order to evaluate the relative influence of transformational and transactional leadership styles on the learning at the institution. It is identified that both the leadership styles are contributors to learning. The relationships between both the leadership styles with learning are positively significant. Consequently, this indicates, with more positive perceptions of transformational leadership and transactional leadership styles there will be an increase in level of learning. Similar finding was found by Cecil (2002). He affirmed that the best leaders at creating and maintaining a learning organization are balanced in transformational and transactional leadership characteristics. However, the $t$-value and the beta coefficient results denote that transformational leadership style contributes slightly more to learning compared to transactional leadership style.

In other words, transformational and transactional leadership styles complement one another. Rewards upon completion of tasks are necessary in order to maintain motivation, at least in the short-term. Empowering and encouraging the employees to take on more challenging tasks would provide the inspiration to excel beyond existing capabilities.

**Conclusion**

This research has proved that leadership styles do influence learning in organization. The results of this study support the generalization of findings and conclusions of previous researches on the relationship between leadership style and learning organization. Nevertheless, some of the findings on the relationship between the transformational and transactional leadership styles and learning organization showed results contrary to previous study. However, on the whole, it was found that there is a significant relationship between transformational and transactional leadership styles with learning organization in the intuition. The findings also revealed that transformational leadership style has more positive impact on learning compared to transactional
leadership style. According to Lim (1997) only with the help of an effective leadership, an organization can transform into a learning organization. This would then develop into a successful organization.

Reference


Plagiarism-Tracking Software Instructors’ Perception of Software Use Vs. Actual Purpose of Software

Zeenath Reza Khan  
Faculty of Computer Science and Engineering  
University of Wollongong in Dubai, UAE  
zeenathkhan@uowdubai.ac.ae

Abstract

Academic dishonesty has been a serious issue in higher education for centuries. From cheating in tests and exams to asking peers to write reports, to stealing others’ work (plagiarism), students have done it all. However, of all the dishonest behaviours that students indulge in, instructors find that plagiarism ranks high as a very difficult challenge to manage. Add to this the advent of information communication technology, and it has become even harder to track student plagiarism as technology has made it easier for students to copy, collusion and paste effortlessly. In response, industry and instructors have jointly introduced plagiarism detection software that may curb plagiarism among higher education students.

However, where literature has studied the effectiveness of such software in reducing plagiarism instances among students, proposed success stories, even student perspectives of such software, there lies a persistent problem with the implementation of such software – that of instructors’ understanding and use of such software which may not always highlight the software’s actual purpose.

This paper looks at the perceptions of instructors on the use of plagiarism-detection software and how they actually use the software while grading their students’ assessments and detecting plagiarism.

Keywords: plagiarism, detection, Turnitin.com, text-similarity, software

Introduction

Academic integrity is the code of conduct that upholds honour, and maintains academic standards to avoid improper behaviours in and out of classrooms. Academics worldwide have fought against different types of academic dishonesty among students in order to create a learning environment that may produce graduates who can serve the entire society with honesty and fairness. However, students still revert back to using dishonest means to achieve higher grades, maintain scholarships, fit in with their peers and so on.

Among the many types of dishonest behaviour, plagiarism is one such action where students use others’ ideas and words without giving the authors due credit. Over the last decades, through student self-reporting, studies have suggested that plagiarism occurs among students with as high as 75% of the respondents admitting to indulging in some form of plagiarism in and out of classrooms (Bowers, 1964; McCabe and Trevino, 1997; McCabe et al, 2001). Such high prevalence of plagiarism among students has led a lot of researchers to dedicate their studies to identifying possible reasons why students plagiarize (McCabe et al, 2002), how prevalent plagiarism may be among higher education settings in terms of single campus (Genereux & McLeod, 1995; Underwood, 2006; King, Guyette, & Piotrowski, 2009) and multiple campus (Bowers, 1964; McCabe et al, 2001), and how information communication technology has impacted plagiarism among students (Khan and Balasubramanian, 2012). Other studies have proposed ways instructors can curb plagiarism through setting assessments that aid in deep learning (Caroll, 2007), ensuring students are aware of the policies, instructions and punishments (Landau, et al 2002; Sutherland-Smith, 2005), and using detection methods that rely on traditional search methods or using software-based solutions (Dahl, 2007). However, issue arises when instructors using such detection methods, especially plagiarism detection software, are unsure of the detection software, its true purpose and how it should be used.
This paper studies instructors’ understanding of the purpose of plagiarism-detection software, and how they actually use them.

**Higher Education and Plagiarism**

Higher education (HE) is an educational level that follows the completion of secondary level education and includes teaching, research, applied knowledge, skills and experience which all result in a degree (Campbell & Rozsnyai, 2002). HE is believed to be important because it is the basis for most professional training and jobs and gives graduates a host of choices and possibility of higher salaries (Campbell, 2011). Because of its importance, society expects that graduates have certain skill sets associated with their degrees such as knowledge and skills of a particular trade, confidence, honesty, fairness, responsibility and loyalty (McCabe, 1993).

Academic integrity is a collection of codes of conduct that are instruments used by HE institutions to indicate the desirable standards of student behaviour that will lead to establishment of graduate skills desirable by employers (CAI, 1999). Academic dishonesty is any form of cheating that occurs during a formal assessment such as during exams, while writing papers or reports. Key areas of dishonesty identified in the literature are plagiarism, cheating, falsification and fabrication, and aiding cheating (CIP, 2003).

Plagiarism is defined as an act of using another person’s words or ideas without their acknowledgement or permission (Youmans, 2011). Plagiarism can be intentional or unintentional and is believed to compromise the integrity of student work (McCabe, 2011). Studies propose that dishonesty in higher education such as plagiarism can also negatively impact graduate qualities (McCabe et al, 2001), students’ learning (Isserman, 2003), and encourage unethical behaviour in workplaces (Sims, 1999; Beck and Ajzen, 1991; Nonis and Swift 2001).

Over the years, many studies have proposed variant degrees of cases of plagiarism among higher education students from as low as 20% (Davis, et al, 1992) to as high as 75% (McCabe et al, 2001). According to decades of research by authors such as McCabe (2005), Christensen-Hughes and McCabe (2006), McCabe and Bowers (1994), McCabe and Trevino (1997), and McCabe, et. el., (2001), the frequency of cheating among HE students seems to have increased over time, making it a very serious issue in academia.

**Plagiarism and ICT**

Information communication technology is any information and communication technology such as computer, software, hardware, telecommunications, and electronics (Stevenson, 1997; Granville, et al 2000). The recorded introduction of ICT in HE began as early as 1920s with the machine-use for self-scoring testing used by Pressey (Smith and Smith, 1966) to introduction of PLATO (a large scale project to promote use of computers in education through time sharing) in the 1950s (Molnar, 1997), to computer assisted instructions in the 1960s (Smith and Smith, 1966), to the development of programing language LOGO that helped students’ critical thinking and mathematical problem solving in the 1970s (Molnar, 1997), to the introduction of low-cost personal computers (Bork, 1985) to the development of intelligent tutorial systems in the 1980s and 1990s that further enhanced teaching and learning (Jonassen 1996), to the introduction of intelligent computer-assisted instructions that assisted in the cognitive development of students (Brown, 1977), to the introduction of applications such as word processing, spreadsheet and so on in the 1990s (Morrison et al, 1999), to the development of the Internet, the World Wide Web (WWW) (White, 2008; Aslan and Reigeluth, 2011) and ultimately Web 2.0 (services beyond a static site that allowed teachers and students to interact and communicate) (O’Rielly, 2005) all the way from the 1990s through the 20th century to date.

The introduction of ICT has made education accessible to students beyond the traditional classroom, removing the barrier of time, geographical location and in some cases, instructors (Oliver, 2002). Because of ICT, information sources have become readily available through online databases, e-books, e-journals, and e-libraries that have made information accessible to students world-wide (Jones et al, 2006), so much so that studies suggest that over 70% of students mostly use online sources to complete their essays and reports (Lenhart, et al 2001).

As mentioned previously, plagiarism is not a new phenomenon in HE. Literature suggests that 75% of the college students admit to plagiarizing in their reports and essays (Goode, 2007, Mullens, 2000). However, with the onset of ICT in HE, the problem of plagiarism has only worsened as it has increased opportunities for
cheating and dishonesty (Bracey, 2005), giving students the impression that anything on WWW is free (Clayton, 1997), allowing students to search for information easily, copy and paste information easily, indulge in collusion, or even buy ready-made essays and reports online (Born, 2003; Park, 2003).

Detection and reduction strategies against plagiarism

The academic community has responded to the raising issue of plagiarism with a number of different detection and reduction strategies over the years.

Studies suggest that some of these strategies are student-centered such as:
- raising student awareness about academic dishonesty and plagiarism (Carroll, 2002)
- explaining what is meant by plagiarism, what constitutes this act (Davis, 1993; McCabe and Pavela, 1997)
- keeping open communication between student and instructor, explaining the instructor’s expectations of the assessment to the student (McCabe, et al, 2001)
- introducing honour codes and policies that encourage students to adhere to ethical codes of conduct (McCabe, et al, 2002)

Some studies propose methods that are more pedagogical (Carroll, 2007) such as:
- structure assessments that are not easy to plagiarize
- structure assessments that evoke deeper learning, critical thinking

Other studies suggest methods that focus more on detection such as the implementation of detection software and systems (Frey, 2001), such as Ferret, CopyCatch Gold and Plagiarism Catcher which use search engines to compare and find the source of suspected plagiarism (Lyon et al, 2006; Kraemer, 2008) and Turnitin.com that uses search engines and creates its own database of papers that include peer-reviewed articles, text books, web pages, and previously submitted papers to compare and find sources of plagiarism by highlighting the copied texts and giving respective sources (Youmans, 2011).

Many studies have proposed that implementing such strategies can in fact aid in detection and reduction of plagiarism among HE students (McCabe, et al, 2001; 2002; McCabe and Pavela, 1997; Carroll, 2007). Studies have further suggested that software detection software help instructors in detection and reduction of plagiarism by showing how essays are constructed and whether they are plagiarized and counter this behaviour (Todd, 2010). Moreover, the fear of being caught plagiarizing through such software promotes ethical behaviour among students and reduces plagiarism cases (Youmans, 2011; Todd, 2010).

Statement of Problem

Existing literature looks at the instances of plagiarism among HE students (Bowers, 1964; McCabe, 1993) and ways to curb it (McCabe et al, 2001; Carroll, 2007). Literature also proposes studies on the effectiveness of plagiarism detection software (Todd, 2010, McCabe and Trevino, 1997), student perspectives of the software (Dahl, 2007), legal and pedagogical issues of using such software (Jones, 2008; Todd, 2010).

However, few or no studies have been uncovered on how instructors actually use plagiarism-detection software in their courses. Where research proposes that software such as Turnitin.com and others require instructors to actually read the essays and reports and interpret the generated similarity index provided by the software in order to actually decide when plagiarism has occurred (McKeever, 2006), students complain that they are afraid of being falsely accused of plagiarism because of the lack of human judgment in the similarity index produced (Dahl, 2007), and because these software systems are not automatic tools that instructors perceive them to be but rather need manual intervention in order to help detect and thereby reduce plagiarism (Jones, 2008).

Therefore, the aim of this paper is: does the instructors’ perception of plagiarism-detection software match the actual purpose of the software?

Method

To conduct this research, the author chose three different academic institutions who agreed to participate under strict confidentiality due to fierce competition between the institutions. The chosen institutions represented a semi-state run system, a private university and an off-shore campus university.
The author developed a survey for the instructors. The survey was then distributed to 29 instructors by third-party research assistants to ensure confidentiality and anonymity. 15 questionnaires were considered for the study and the rest rejected as they were not completed.

The survey was divided into three sections. The first section collected demographic information of the respondents; such as “age group”, “gender”, “nationality” and “subjects taught”. The second section collected information regarding the plagiarism-detection software (PDS) used by their respective universities. The third section collected information on their perceptions and practices of using the detection software. This section questions used 5-point Likert-scale in order to capture a range of their responses on a number of questions such as “I use the PDS regularly for all my students’ assessments”, “I believe the PDS similarity index is the same as plagiarism”, “I depend completely on the PDS similarity index to detect plagiarism”, “I have spent time judging the similarity index provided by the PDS”, “I believe using the PDS as I have has reduced instances of plagiarism in my class”, “I have used ODS similarity index to punish students who plagiarized”.

Results and discussion
Of the 15 instructors, six were from India, three were from the UK, two were from USA, two were from Pakistan, and two were from Iran. There were a total of eight male instructors and six female instructors. Their age group ranged from 26 – 57 and they taught in the fields of Business Administration, Finance and Accounting, Computer Science, Marketing and Advertising, and Journalism.

The demographic information shows that the sample population represented a wide range of instructors who were evenly distributed between male and female respondents; the age group contained young to mid-aged instructors who taught a variety of subjects from different fields.

For all three universities, the chosen PDS was Turnitin.com that the respective universities registered to and used at a regular basis.

For the third section, the responses for each criteria given above are illustrated as a percentage in the figure below:

![Figure 1: Instructor perceptions and practices while using PDS](image)

As the figure above illustrates, majority of the instructors seemed to use the PDS to detect plagiarism directly with little or no manual intervention. Over 90% of the respondents said that they used the PDS regularly for their assessments. 100% of the respondents strongly agreed that they believed the PDS similarity index is a the same thing as plagiarism and therefore actually detects plagiarism. 90% of the respondents admitted they completely depended on the PDS similarity index to detect plagiarism. Almost 70% of the students said they actually spent time manually judging the similarity index provided by the PDS in order to actually detect plagiarism where as 27% of the respondents chose not to respond to this question, choosing “neutral” as their option. 100% of the instructors believed that using the PDS reduced the instances of plagiarism in their classes. 70% of the instructors agreed to using the PDS similarity index to actually punish their students for plagiarism.

At this point, it is critical to understand what Turnitin.com is and how it works. According to Jones, et al (2005), Turnitin.com is a global leader among plagiarism detection software. It is a tried and tested system. Essays and reports submitted to Turnitin are compared to all the previously submitted essays and reports of students, as well as to archives and local database of journals, online publications, news articles and lots more (Jones, 2008). The software matches text to its database and produces an originality report that is sent to students and can be
viewed by the instructor. This report colour codes and highlights all text that overlaps with existing text in the database. This can include cited text, reference list and so on (Jones, 2008).

It is important to understand the Turnitin.com does not provide a report that highlights plagiarism in a student’s essay or report. Rather, it only provides a similarly index of all the text that has been used in the essay or report, even if that text has been cited by the student. So, it is crucial that instructors actually to check the report, carefully judge the highlighted text and then decide on the instance of plagiarism. However, the results show a strong inclination of instructors to use Turnitin to actually detect plagiarism without manual intervention. What is more worrying is that they also go ahead and actually hand out punishment to students they believe the system has chosen as plagiarizers.

**Conclusion**

Decades of research have highlighted the issue of academic dishonesty and more precisely of plagiarism among HE students. Where HE is supposed to enhance student knowledge and skills, instill values such as integrity, honesty fairness and trustworthiness, there is a strong trend that proposes that students are inclined to engage in dishonest behaviour for reasons that range from peer pressure, to need for higher grades, scholarships and so on. With the onset of ICT into HE, matters seem to have gotten worse due to ICT’s ability to make it easier for students to find information, to copy and paste information and to take information for granted.

Literature has proposed various methods and strategies to detect and reduce academic dishonesty, particularly plagiarism among HE students which seems to be a high ranking issue for instructors in the 21st century. From student-centered strategies that advise instructors to adopt student-centered approach to make them responsible members of the class, giving them clear instructions, delivering clear expectations of assessment and behaviour; to pedagogic approach to structure assessments to make plagiarism harder; to using plagiarism-detection software, the literature has proposed and tested all these strategies to prove they do work to reduce plagiarism.

However, this study has highlighted a crucial problem that has not be addressed in literature before: the instructors’ perceptions and practices where plagiarism-detection software are concerned. The study has shown clearly that instructors use the PDS as an automatic tool to detect plagiarism whereas the tool is clearly one that needs manual intervention to ensure fair and just actions are taken against real plagiarizers.

The author recommends training sessions and workshops for instructors to help them better understand what in fact may constitute plagiarism and better understand of how the PDS work and how to use the chosen PDS in order to ensure they are capable of detecting and preventing instances of plagiarism in an effective manner that will help instill important ethical values in their students.

**References**


Assessing The Learning Experiences of Business Students Working in Cross-Cultural Virtual Teams

Sarah Horton-Walsh  
Marketing and Advertising Department  
Coventry University Business School  
Coventry University  
s.horton-walsh@coventry.ac.uk

Julia Tyrrell  
Marketing and Advertising Department  
Coventry University Business School  
Coventry University  
j.tyrrell@coventry.ac.uk

Carmela Bosangit  
Marketing and Advertising Department  
Coventry University Business School  
Coventry University  
carmela.bosangit@coventry.ac.uk

Abstract

Operating in global virtual teams (GVTs) has become an established form of working for international organisations, but teaching business students how to maximise their effectiveness in GVTs is a challenge. Using a multi-country student collaboration project, called the X-Culture project, this paper investigates the learning experiences of business students working in virtual teams. The data is part of a post-project evaluation survey, which was completed by over 500 students involved in the project. Responses to an open-ended question allowing students to give their impressions on team performance were extracted from the survey results. These were then coded using NVivo into four key themes, which had emerged from the literature. The results for the first theme, teamwork and student roles, demonstrated that team leadership was an issue although informal leaders emerged to deal with the organisational issues. Responses around the second theme, communication, mainly focussed on the lack of face-to-face communication (although Skype was popular in overcoming this), infrequent communications between team members, and the shortcomings of Facebook for this work. Cultural aspects was the third theme, with many positive responses from students about the opportunity to learn about different cultures; the final theme focussed on trust, with student feedback indicating initial lack of trust in team members, but recognising the importance of building relationships to ensure team effectiveness. Recommendations are given about the effectiveness of projects such as this in developing experiential learning.

Keywords: Global virtual teams; cross-cultural communication; experiential learning

Introduction

Providing university students with practice-based learning that would prepare them to operate in today’s culturally diverse and global world is a challenge. International collaboration in the business world has changed from face-to-face team meetings to global virtual teams (GVTs), and preparing students for such changes is vital. Hence, internationalising degree programmes, strengthening awareness of intercultural content of the curriculum and designing educational experiences that extend cross-cultural ways of working beyond the campus have become ongoing concerns for higher education institutions.
The reality of modern business requires ever increasingly sophisticated forms of work and collaboration (Kozlowski and Bell, 2003). The cultural diversity of virtual teams and differences in organisation environment when dispersed across many countries present issues in the methods and forms of communication that are used, which in turn are likely to impact team efforts towards coordination and overall team effectiveness. Whilst using experiential learning approaches to develop hands-on real world experience has been empirically demonstrated, there is a further need to assess the learning experiences and effectiveness of business students working in cross-cultural virtual teams. Hence, this paper, using the X-culture experiential learning project, aims to examine students’ assessment of how they have worked together in a cross-cultural virtual team. Drawing from an evaluation survey of the project, the paper highlights important factors that influence the team as GVTs. It is envisioned that this paper will contribute to understanding how cross-cultural virtual team works.

**X-Culture Project**

X-Culture is an international collaboration project where students work in GVTs for several months collectively completing a term assignment. The project (http://www.vtaras.com/x-culture.html) was launched in 2010 and approximately 4,000 students have participated in it since then. The number of participants in a given semester has been increasing every year, reaching over 1,700 participants in the late 2012. Depending on the semester, the students come from about 40 universities in 30 countries on all inhabited continents. Postgraduate and undergraduate students take part in the project with the former accounting for about 30 % of the participants. Hence, the global virtual teams (GVTs) that take part in the X-Culture project are quite diverse in terms of nationality, demographics, geographic region and rationale for undertaking the project.

The teams, which usually comprised of seven students each, studying in a different country, have to develop a business proposal for a company of the team’s choice. The particulars of the task vary slightly from semester to semester, but the core task is to come up with an idea for a product that is likely to be profitable for the client company in the future, conduct a market opportunity analysis and choose the market where the product is most likely to be successful, and write a new market entry plan that details the recommended market entry mode, staffing and marketing strategies, and the like. With the pre-project training and the post-project presentations, the X-Culture exercise takes up most of the semester. However, the active collaboration window, the time when the team members work directly with one another, spans about two months.

**Literature Review**

**Global Virtual Teams**

As organisations become more diverse and ever new forms of organising emerge, working in global teams is fast becoming the rule rather than the exception (Zander et al, 2012) therefore preparing students for this increasingly globalized and interdependent world is a real challenge. A further dimension in preparing them for the business world is where they may be required to work in geographically distributed, cross-cultural virtual teams, with team members who are in multiple time zones, countries and cultures and who work in multiple languages (Cogburn & Levinson, 2003). A global virtual team (GVT) is defined as a geographically dispersed team, working with members of diverse cultural backgrounds to collaborate on common business goals, facilitated by the use of computer-mediated communication (Javenpaa & Leidner, 1999). The strengths of GVTs are evident as virtual context has enabled teams to complete tasks more efficiently and quickly than ever before (Zander et al 2012). However, inevitable challenges of the different cultural backgrounds coupled with the interface of communications technology have been magnified. The use of asynchronous communication media (e.g. e-mail) has constrained the ability of GVT members to interact effectively in real time (Bell and Kozlowski, 2002), but increased use of synchronous communication media (e.g. Skype and video-conferencing capabilities) has to some extent overcome these short-comings. Thus, getting students to participate in GVT projects as part of their management education is an excellent opportunity to prepare them for their roles in a multi-cultural global workplace (Clark & Gibb, 2006). Students participating in a GVT would understands the challenges of cross-cultural communications (Butler & Zander, 2008), and appreciates that the effectiveness of a GVT depends on the successful collaboration amongst diverse team members which in turn depends on building trust amongst team members.

The success of any team depends greatly on the trust that team members have in each other’s ability to contribute to and achieve the team objective. In any traditional team, the trust level that is developed during the early stages of any team formation is crucial later for the whole team’s performance while in GVTs, the diversity of the of the team’s backgrounds, cultures and races impacts upon the amount of time it takes for a
team to build trust in those early stages (Cogburn & Levinson, 2008). Collaboration and interaction between team members depends on trust, but interaction is slower to build in GVTs, hence there is a gradual growth of trust over time as people generally are unlikely to have a high level of trust toward strangers (Cogburn & Levinson, 2008). Because team members in GVTs are geographically dispersed and from different cultural backgrounds, it takes even longer to build trust.

Another challenge that GVTs faces is interacting with people from various cultural backgrounds (Baba et al., 2004), with whom they have never worked before. Oertig & Buergi (2006) noted that team leadership communication (in particular language and cultural issues) and developing trust were reported by project leaders of cross-cultural project team in a Swiss multinational company. Appreciating those different cultural backgrounds is an important issue in running effective GVTs and this can be enhanced by learning as much as possible about the different cultures of team members. According to Miller et al (2000), the very act of expressing genuine interest in an individual and his background improves morale and understanding, and can translate into more effective project performance. Hence, the challenges of interaction within culturally diverse team members should be considered in GVTs; for example, giving the team adequate time and opportunities to be familiar with each other.

Experiential Learning

Concerns about higher education in particular business education often suggest it is too esoteric and theoretical and not sufficiently practical to prepare students for the challenges in the real world (Rubin and Dierdorff, 2009). Business and management education should focus on the learner’s experience to provide opportunities for more practical use of theory in developing workable solutions to problems and situations (Huczynski, 1994, O’Connell et al., 1999). Raelin (2000) supports the value of integrating theory and knowledge with work practice. Furthermore, Gosling and Mintzberg (2006) argue that educating for the global context meant that managers need to live cross-cultural experiences as authentically as possible.

Experiential learning is offered as a pedagogical approach which can be used to develop such hands-on learning. Experiential learning theory (ELT) developed by Kolb (1984) is defined as “the process whereby knowledge is created through the transformation of experience” (p. 41). Students are able to apply concepts and theories learned in the classroom to real-life situations and establish connections between what they have learned and what they have observed and experienced. Experiential approaches further provide support of intergroup and interpersonal issues (Piercy and Caldwell, 2011). Through the interpersonal exchanges evidenced in group collaborative ways of working business skills such as teamwork, information gathering, interaction, communication, conflict resolution and presentation are also practised and developed (Elam and Spotts, 2004; O’Malley and Ryan, 2006; Woolcock, 2007). Austin (2002) also referred to experiential learning as a social process through which newcomers construct their particular roles as they interact and engage with others. This can happen through the interactions of team members with each other that are facilitated through team-based experiential exercises and ongoing negotiation and dialogue. Experiential learning as a teaching technique (Ng, Dyne and Ang, 2009) and support of team-based experiential exercises to enhance cross-cultural collaborative learning are widely accepted (Crossman and Bordia, 2011). This paper seeks to add a further dimension by including some discussion in relation to the effectiveness of such approaches within international collaboration projects amongst students working in global virtual teams.

Methodology

The data for this research was taken from the post project evaluation survey of X-Culture project. Over 500 students completed surveys at intervals, before, during and after completion of the project. This paper used the data from the open-ended questions which asked students to provide comments on their teamwork and role in the project and areas for improvement for the X-Culture project. The data were extracted from the spreadsheet file and imported to Nvivo, qualitative software, for analysis. The authors read through the comments and identified and agreed on emerging themes that is relevant to the literature and then proceeded to code the data into these themes. Illustrative quotes are selected to provide evidence of the themes which represented students’ evaluation of their group working as a GVT.

Findings and Discussion

Four dominant themes emerged from the analysis, namely, teamwork and roles of team members; communication, cultural aspect and trust. The first theme, teamwork and roles (of team members) is a well
documented means of learning the vital business skills for group collaboration (Elam and Spotts, 2004; O’Malley and Ryan, 2006; Woolcock, 2007; Clark and Gibb, 2006). Operating in a virtual context means relying on computer mediated communication (Javerpa and Leidner, 1999) thus we include communications as the second theme; the inclusion of the third theme, cultural aspects, is obvious; team efficiency means accommodating the diverse cultural backgrounds of team members (Bell & Kozlowski, 2002). The last theme, developing trust in the abilities of team members, is an important element in any traditional team, but takes longer to build in a GVT (Coburn & Levinson, 2008).

Teamwork & Roles. The responses relating to the role of leadership were frequent and demonstrated how some students positioned themselves as leader, whilst others called themselves informal leaders -for instance two or three group members acted as informal group leaders by “coordinating work and ensuring that the work was of a high standard”, with some students indicating that their roles in the team ‘were to provide some sort of unity within the group, making sure that all went well’. There was an equal emphasis on students defining themselves as active team members illustrated by comments such as ‘No one was team leader, we were all active on Facebook etc....’ However, many students were content to be a follower as seen in their statements, ‘I was not a leader, I participated and give my opinions but not a leader.’ Students were asked about what they would do differently within the team if they were to participate in this project again and not surprisingly, many expressed the view that they would want to be a team leader, to coordinate more and to address some of the issues in the group. Hence there were comments like: ‘I would elect a clear leader in the first instance. I would also make sure that each member’s best skills and attributes were exploited when carrying out the work,’ or ‘I would be more “pushy” with the team members who showed lack of enthusiasm’. It is clear that team leaders and knowing the roles of each team member which will allow them to perform certain tasks are crucial to GVTs.

Communications. Anecdotal comments from our UK students who participated in the project this year related to lack of communication with the non-participants in the teams. The importance of communication to GVT is evident in this comment from a student: - ‘I would also suggest that we offered ratings each week for communication so that if there was a lack of participation it could be fairly commented on at the end of the project for certain individuals.’ Students highlighted several problems related to communication which included: a) the lack of face to face meetings, b) lack of frequent communication, c) increased use of e-mails as follow-up methods, d) the inappropriateness of Facebook as a communication tool and e) the quality of interaction. Skype was mentioned frequently as most useful, whilst others suggested video meetings or conference calls. Typical responses in support of Skype were as follows ‘I would push harder to have Skype calls from the outset- my team were very unresponsive to attempts but I feel this would have brought us closer as a team’ and ‘I would probably insist more on using Skype, because from the experience of other teams, it seemed more interactive and builds stronger relationships’. Facebook was also mentioned frequently but there were some problems encountered, as one student stated, “As a collaboration vehicle, Facebook is terrible in terms of co-ordinating versions of different documents and tracking group edits. One member was very unfamiliar with technology and it seemed cruel to change from Facebook to Google Docs mid-project, but next time I would insist as I believe it would have greatly simplified the report-writing process. Difficulties with language were mentioned but didn’t seem to be a big problem- ‘I also noticed a lot of spelling mistakes and grammatical errors within the instructions, briefs, emails and surveys. Without the opportunities of physically working together, communications in GVTs relied heavily on technologies that are available to them and this is also magnified by the need to consider the members are in the different time zones.

Cultural aspects. Many responses on students learning about other cultures were positive as seen from these comments: ‘I loved to work with different people’, and ‘I would have more conversation with teammates on their culture.’ However, for others it was a missed opportunity. If they were to participate again, they would try to learn about their team members and their cultures by a) ‘Spending more time sharing about our cultures; b) being less task-oriented and more people-oriented’ and c) ‘I will do better than this next time to work with my international friends.’ There were also some interesting responses about building relationships, for example, ‘I would work more on building a social relational aspect (networking) and ‘I think building relations with persons makes it more comfortable to interact with members from different cultures. Other students reflected intelligently on the cultural differences: ‘From this project experience, I learned many of difficult elements for cross-cultural activities such as leadership, direct communication or indirect communication.’ On the other hand, there are also comments indicating perhaps a desire to have team-mates from same country such as ‘there should be at least two persons each from the same country in a group. There were inevitable problems with English language, and its impact on team performance as seen in this comment: English being my first language meant that I could easily understand what was meant. However, I felt that this may have caused some confusion to those people who do not have English as their first language.’ This confirms Baba et al’s (2004) claim that one of the challenges of GVTs is interacting with people background and indeed there is a need to
understand each other’s background to improve morale and understanding for more effective project performance (Miller et al 2000).

**Trust.** This theme highlighted the importance of trust in working in GVTs. It is evident that there is a lack of trust in other team member with regards to their work as there are many comments that referred to the standard/quality of inputs from members that will impact the project outcome and other coursework. These comments covered related skills such as referencing properly and concerns of plagiarism which probably signals different expectations perhaps influenced by culture. Examples of comments that demonstrated lack of trust include: a) ‘I would ask people to re-do their work to a high standard rather than me having to re-do their work.’ b) ‘Others, either did not understand or did not care and copy/pasted much of their work which was frustrating to resolve.’ Communication problems also played a significant part in building trust as seen in this comment: ‘There was one person in the group who let us down in a big way. He had an important section and the work he produced was extremely poor and unacceptable. Lack of effort was clear and awful English. He did not communicate with the group at all.’ However, students have also expressed desire to build relationships with other team members -, for example, a student stated: ‘I would prefer to have one whole session in talking with the group just casual conversations and to get to know them better. This helps in a bit of trust building,’ and another student wanted more time and said a way to improve their working as a team is ‘to have more time to socialize and gain trust among team members. I did not understand the various personalities of some members.’ As Cogburn and Levinson (2008) had pointed out there is a gradual growth of trust over time and a high level of trust is unlikely towards strangers and the students are indeed strangers before the start of the project and were not given enough time to become familiar with each other.

**Conclusion**

The purpose of this study was to assess the learning experiences of business students working in cross-cultural virtual teams. Experiential exercises such as the X-Culture project clearly provide opportunities for many students to actively integrate theory and knowledge with work practice. Such learning required students to identify and respond to problems and situations and to negotiate meaning and solutions with their culturally diverse disparate team members. Students had to be prepared for the unexpected and for the challenge of adjusting their position to communicate with others when things do not go to plan. Whilst many students expressed some frustrations with their team members, they were able to recognise the positive and negative contributions that were made to know who was an asset to the team and who was considered a poor performer, reminiscent of coordinated efforts in the business world.

Our findings support previous research (Cogburn & Levinson, 2008) that showed relationships take longer to build in GVTs. Students reported the lack of time available to develop interpersonal relationships and trust among the team members at the start of the project. Teams were assigned by the X-Culture project lead and although participants received some initial pre-project training the teams were required to begin work on their business proposals straight away. Developing relationships can impact and support the overall student experience in a number of ways: a) to know and learn more about other cultures and different ways of working; b) to know and access a range of communication tools and channels appropriate for individual and collaborative virtual work and c) to build trust and commitment between team members for individual and collective responsibility towards completing the project.

Overall, there appears positive support for experientially based learning experiences as a way of enhancing the curriculum and teaching ‘real’ business skills to internationally diverse groups of students working in global virtual teams. In projects involving experiential learning the product produced by students may be secondary to the experience they go through while negotiating and producing it. This type of learning has implications for the skills required of tutors and instructors, who need to be able to facilitate co-creation of learning (between students and between students and tutors) rather than perform in the lecture room (Gosling and Mintzberg, 2006). Interventions and guidance may be required from tutors to act in the role of work place mentor to students who seek advice in dealing with difficult situations with their peers.

This research does have a number of limitations: a) the data was analysed from the post-project evaluation survey with no consideration of the pre or mid project survey data and b) other than anecdotal comments from the UK tutors, no other feedback was sought from participating tutors in other countries involved in the project. Future research could combine interviews with participants and tutors to explore a deeper level of understanding of the themes identified from analysis of the open-ended questions in the survey data. Larger scale comparative studies of students from different geographic regions and cultural backgrounds could examine a number of areas...
such as the participants’ adaptation strategies to working in global virtual teams or their perceptions of the X-Culture experience as a means to enhance cross-cultural global learning.

References


Designing Learning Management System to Encourage E-Learning Sustainability

Yee Mei Lim
Computer Science Division
Tunku Abdul Rahman University College, Malaysia
ymlim@acd.tarc.edu.my

Keh Niang Chee
Mathematics & Statistics Division
Tunku Abdul Rahman University College, Malaysia
cheekn@acd.tarc.edu.my

Dr. Aladdin Ayesh
Faculty of Technology
De Montfort University, United Kingdom
aayesh@dmu.ac.uk

Dr. Martin Stacey
Faculty of Technology
De Montfort University, United Kingdom
mstacey@dmu.ac.uk

Abstract

Many universities have been employing Learning Management System (LMS) in their educational programs for many years. However, sustaining the e-learning environment has become a great challenge for these institutes. Although there was much research conducted to study the success factors of a LMS, understanding the impact of user interface, navigation and usability designs, which may affect the user experience in virtual learning environment, is equally important. It is suggested that during the design stage the instructor should plan and structure the resources to assure interactions that assist in the transfer of skills and knowledge. In addition we can use tools such as email, chat rooms, and discussion boards to provide learners the opportunities to interact and add a new level of depth into their learning. It is also necessary to conduct a complete series of evaluations for testing the accuracy, effectiveness and clarity of the e-learning system. Therefore this research aims to evaluate the effectiveness and clarity of LMS design to encourage e-learning sustainability. We investigate the effectiveness of the LMS in assisting knowledge transfer and interactivity in the virtual learning environment, based on three areas: navigation design, user interface design and usability of the discussion board. An online questionnaire survey was conducted to collect data from students and instructors regarding their experiences with the LMS, and their satisfaction levels in these three areas, as well as to suggest areas of improvements.

Keywords: learning management system, navigation design, user interface design, usability, discussion board

Introduction to Learning Management System

Learning management system (LMS), which is also known as course-management system (CMS), is ubiquitous in the e-learning world especially for higher education institutions (HEIs). A LMS prepares a set of tools and framework that allows exchange of information and knowledge amongst instructors (teachers) and students via the Internet. Additionally, it makes the creation of online course content, the teaching, and the management of course content to be relatively easy for the instructors (Meerts, 2003; Trotter, 2008). Other facilities provided by the LMS may include enabling communication by using tools such as e-mail, real-time chats and asynchronous bulletin board, creating online assessments such as test and quiz, and displaying student grades, inter alia.
Initially there was resistance against the use of LMS by many HEIs due to its high price and the closed-proprietary system model. Nevertheless today many institutions are increasingly adopting LMS. For instance, in the United Kingdom alone, 95% of the institutions of higher education use LMS in 2005 compared to 86% of them in 2003 (Jenkins, Browne, & Walker, 2005). In Malaysia, 88% of the HEIs adopted LMS in 2004 versus 100% in the year 2011 (Abtar, Ahmed, Abas, & Asirvatham, 2005; Embi, 2011). The reasons for the increase in number of adoptions are mainly due to the tools becoming more robust and flexible and the increasing student demand for faculty use of LMS in the institutions (Meerts, 2003).

Since many universities are employing e-learning into their educational programs nowadays, the strategies of sustaining the e-learning environment has become a great challenge for these institutes to ponder (Embi, 2011). Although there are a lot of research conducted to study the success factors of a LMS, the system should also be evaluated on the aspects of HCI factors such as the effectiveness of interfaces and the quality of usability and interaction (Costabile, Marsico, Lanzilotti, Plantamura, & Roselli, 2005; Ssemugabi & de Villiers, 2007). This is important as complexity of the tools or the usability of the user interfaces should not be a hindrance to learning.

The Importance of Improving User Experience in LMS

Much research was conducted to study the challenges and success factors of e-learning in several HEIs in Malaysia, such as strategic planning and implementation, technology availability, governmental and institutional supports, and management factors that could increase the success of the LMS (Embi, 2011; Masrom, Zainon, & Rahiman, 2008; Maznah, 2004; Selim, 2005; Zainon, Masrom, & Rahiman, 2007). However, understanding the impact of user interface, navigation and usability designs of the LMS towards the success of e-learning, which may affect the user experience in virtual learning environment, is equally significant.

A user experience encompasses the behaviour, thoughts and feelings a person has when encountering a product over time. A good user experience balances elements such as usefulness, usability and desirability (Ssemugabi & de Villiers, 2007). Research in psychology and neuroscience reveals a tight connection between affect and cognition; Emotions (affect) guide social interactions, influence decisions and judgments, affect basic understanding, and can even control physical actions (Ssemugabi & de Villiers, 2007). It is also proven that there are perspectives on how cognitive processes are related to emotions (O'Regan, 2003). Kay & Loverock (2008) predicted the changes in emotions would be correlated with changes in use of computers. Increased happiness and decreased negative emotions should translate into more frequent use of computers. Therefore developing strategies to reduce negative emotions or to promote excitement may be important with respect to promoting use of computers (Kay & Loverock, 2008). Thus, it is important to take into consideration the emotional state of the users in e-learning environments in order to enhance learning performance.

A study by Lazar et al shows that between a third and a half of the time on computer is spent on frustrating experiences. Amongst the reasons, web navigation appears to be the largest cause of users' frustrations. It also shows that novice users suffer even more frustration than experienced users, as they do not have a lot of computer experience (Lazar, Bessiere, Ceaparu, Robinson, & Shneiderman, 2003). Also, a website that is packed with many features is not necessarily usable and effective (Jenkins, Browne, & Walker, 2005). When the users find a website unfriendly, confusing, overloaded with too much information, or they are unable to find the information they need, they will leave that site in frustration (Browne, Hewitt, Jenkins, & Walker, 2008).

User experience can be improved with good design of the website. Selim proved that the instructional implementation of the information technology (IT) is also critical in bringing the success of e-learning, which includes network components (such as bandwidth, security, etc.), course management systems, and user interface (Selim, 2005). A badly designed and unpredictable user interface, which is inconsistent, deceptive and confusing, can increase user frustration (Granic & Glavinic, 2006; Guo, Qian, Guan, & Wang, 2010; Lakhan & Jhunjhunwala, 2008). Therefore, it is important to design an effective interface, so that it improves user experience. Johnson suggested that during the design stage the instructor should plan and structure the resources, to assure interactions that assist in the transfer of skills and knowledge. In addition we can use tools such as email, chat rooms, and discussion boards to provide learners the opportunities to interact and add a new level of depth to their learning. It is also necessary to conduct a complete series of evaluations for testing the accuracy, effectiveness and clarity of the e-learning system (Johnson, 2003).

Research Questions
This research evaluates the effectiveness and clarity of LMS designed to encourage e-learning sustainability. We investigate the effectiveness of the LMS to assure interactions that assist the transfer of knowledge in the virtual learning environment. In this research, we like to survey the following from LMS users (instructors and students):

1. To what extent are the users satisfied with its navigation design?
2. To what extent are the users satisfied with its user interface design?
3. To what extent are the users satisfied with the discussion board as a communication tool to encourage interactivity?
4. How the LMS should be designed to improve the navigation design, user-interface design and usability of the discussion board, to meet users’ expectations?

It is important to note that satisfaction is correlated to emotion, and outcome satisfaction is positively related to user’s enjoyment of the overall experience (Bee & Madrigal, 2012; Hülsheger, Alberts, Feinholdt, & Lang, 2012). In other words, if the overall experience using the system is positive, then the user’s emotion towards the system is also positive (satisfaction).

Method

Participants and Procedure

This research uses questionnaire survey to collect users’ opinions and satisfaction levels based on the 5-point Likert scales. Some qualitative data regarding feedback and suggestions to improve the designs are collected too. The survey is conducted at Tunku Abdul Rahman College, Malaysia. The institution adopts Blackboard Learn™ as the e-learning platform to allow blended learning. The data for this study are gathered by means of an online survey questionnaire, which was made available for a month. The respondents are instructed to answer five different sections regarding (1) their demographic background and experiences with the LMS, (2) their navigation experience, (3) their opinions on the user interface design, (4) their experiences with the discussion board, and (5) the areas of improvements to enhance learning/teaching.

Demographic and Background

The survey targeted all the instructors and students at different levels of studies (certificate, diploma and advanced diploma), who have experience with the LMS. A total of 626 responses were achieved within one month, however only 549 of them have experience with the e-learning system. Amongst these 549 experienced users, most of the responses were from students (87.80%) compared to instructors (lecturers and tutors) (12.20%). Respondents were majority male (55.92%) compared to female (44.08%). By age, respondents were grouped into 17 to 20 (75.59%), 21 to 25 (12.39%), 26 to 30 (1.82%), 31 to 40 (6.56%), 41 to 50 (2.00%), and above 50 (1.64%) years old. In terms of students’ level, certificate student was represented by 0.21%, diploma student was represented by 94.61%, and advanced diploma student was represented by 5.19%. In terms of experience with the LMS, most of them have used the LMS for 1-2 years (61.34%), followed by those novices who have used it for less than a year (19.17%). Only 12.14% of them have used the LMS for 3-4 years and lastly 7.35% have used for more than 5 years. In terms of the satisfaction level, two percents of the users reported they are very satisfied, 28.42% of them are satisfied, 7.10% of them are not satisfied and 1.46% of them are not satisfied with the LMS at all. Majority of them (61.02%) are neither satisfied nor unsatisfied with the system. However based on the statistics, the satisfaction level is positively skewed (towards satisfaction).

Data collection

The research is conducted to investigate the effectiveness of the LMS to assist in interactions and transfer of knowledge. Three areas are investigated, which are navigation design, user interface design, and the usability of the discussion board. The data is collected from the 549 experienced users who have used the LMS in the past 2 years.

Navigation design refers to how the features of a website (e.g. hyperlinks, buttons, image buttons, etc.) are located and organized, to enable the user to navigate around the website easily. To measure the satisfaction of the users on the navigation design, we gathered the data as follows:

- The number of features they used and what are the commonly used features in the LMS
- The reasons for not using the features
Sub-theme A: Digital Learning & Teaching Eco-System
•

The users' satisfaction levels on the navigation design

User interface design refers to the graphical and visual design to facilitate interaction between a user and the
system, so that the user can carry out his/her tasks. To measure the satisfaction of user interface design, we
gathered the following data:
• To what extent they agree that (1) the layout design and choice of colours are consistent, (2) the textual
hyperlinks are visible and easy to recognize, (3) they are always kept informed about their current
navigations, (4) proper explanations of the actions and validations to be carried out are displayed clearly,
(5) the LMS offers good use of term or image to help them understand what the purpose of a feature is, and
(6) the pages are loaded with too many features.
• Their levels of satisfaction with the user interface design
Lastly, we assessed the usability of the discussion board. Usability refers to the ease to learn and use the
functionality/features of a website. It also refers to how the user perceives the effectiveness (fit for purpose) and
efficiency (work or time required to use) of the functions. In this section, the respondents are asked to answer
the following:
• How often do they use the discussion board? If the respondents have not used the system in the past two
years, then state the reasons of not using it
• To what extent they agree the functions are usable, such as (1) they are able to figure out how to use it
immediately when they were new to the discussion board, (2) them can effectively follow the posts under
the main topic and not to get off track, (3) they are allowed to know/see the posts they have already read
and those they have not, (4) they always know how to start a new topic/thread for a new discussion, and (5)
the subscription function that allows them to receive emails when somebody replies to their post efficiently
• Their levels of satisfaction with the discussion board

Results
Navigation Design
We group the types of features 1 in the Blackboard LMS into 5 categories, which are:
1.
2.
3.
4.
5.

Communication tools - announcement, discussion board, discussion board management, file exchange,
address book, internal email, messages, group pages, real-time chat, and whiteboard (10 types).
Productivity tools - calendar, My Grades, search, offline content, user manual/quick tutorials, survey/pool,
Bookmarks/Scholar Bookmark/Scholar Stream (7 types).
Student-involvement tools - manage groups, home page/student portfolio, the Electric Blackboard, online
test, and early warning system (5 types).
Course delivery tools 2 - test manager, Gradebook/Gradebook Views, course statistics/performance
dashboard/student tracking, course management and Echo content (5 types).
Page content design tools 3 - manage course design, manage course menu, and create syllabus (3 types).

First we determine the commonly used features by examining whether or not the features are used by the
majority of the users. The formula below is to determine how many users have used each individual features in
the past two years:

Where,
ni,k = Total number of users who use the feature i of category k
Nk = Total number of users who use any feature of category k
The unit step function, Hi,k is used to define how common that the feature i of category k is used:

Hence, if Hi,k = 1 then the feature is considered commonly used.

1

Some other features which are available in the LMS in general may be omitted in this research.
Used by instructor only
3
Used by instructor only
2

P a g e | 79


Overall, from the 30 types of features, only 8 types of tools achieve $H_i=1$. They are announcement (74.89%), discussion board (51.48%), My Grades (60.28%), survey (59.10%) online test (79.49%), course management (78.43%), course statistics (52.94%) and manage design (78.43%). Therefore, we could conclude that only 26.67% of the features available in the LMS are commonly used by majority of the users.

Secondly, a question is given to the respondents to find out the reasons for not using the above features in the past 2 years. Based on the 368 responses, the main reasons are they actually do not know the functions of the features (they do not know what are the features for) (44.29%) and they are not aware of the features (39.95%), followed by they think they do not need the features or the features are not useful (34.51%). Only 11.96% of them commented that the features are not easy to use, and only 2.93% noted some features listed in the questionnaire are not available in their institution. Other reasons that they provided include emergence of other social networking platform (such as Facebook), relying on other classmates to retrieve the materials, slow loading time, lack of time to explore other features, less attractive interface, and restriction of certain feature.

Regarding the satisfaction level, 37.16% of them are either very satisfied or satisfied with the navigation design. Only 11.48% are unsatisfied or not satisfied at all. Majority of the respondents (51.37%) are either neutral or have difficulty to judge their satisfaction level.

### User Interface Design

Majority of the respondents agree that the LMS layout design and choice of colours are consistent (60.77%), and the textual hyperlinks provided are visible and easy to recognize (57.66%). Only 42.15% of them agree that the LMS always keep them informed about the current navigation, 40.88% of them think the system always display proper explanations of their actions, and 33.58% of them agree that the system offers good use of terms to help them to understand the purpose of the feature. Lastly, although majority of the users neither agree nor disagree (or having difficulty to judge) that the pages are loaded with too many features (55.01%), however 36.79% of them do agree with that. Only 8.20% of the users do not think the pages are too packed. Lastly, 42.34% of them are satisfied with the user interface design, and 12.77% do not agree. Most of them (44.89%) have difficulty in judging whether they are satisfied or unsatisfied with the user interface design.

### Usability of the LMS Discussion Board

About thirty percents of the users (30.78%) have not used the discussion board in the past two years. From the remaining respondents of 380 users, majority of them only use the discussion board for 1 to 4 times in a semester (58.68%). Only 22.89% of them are truly active, where they use it more than 10 times in a semester. The major group of users comes from students (72.61%), while for the instructors - only less than half of them (43.94%) are using the discussion board in the past two years. For those who never use the discussion board in the past two years, the main reason is they think they do not need to use it (58.58%), and the second reason is due to majority of the students (37.88%) do not know the purpose of the discussion board. Other reason includes they prefer to use other social networking platform, such as Facebook for discussions. Besides, since there are no responses most of the time, they therefore lose interest to use the LMS discussion board.

On the flip side, based on those respondents who have used the discussion board, majority of them could not judge whether they agree or disagree that the functions are usable. Only 32.88% of them were able to figure out how to use it immediately when they were new to the discussion board, 33.15% of them agree that the system can effectively allow them to follow the posts under the main topic and not to get off track. Less than 40% (37.74%) of them agree that the current design of the discussion board allows them to read all the posts/replies easily, 43.13% of them agree that the discussion board enables them to know/see the posts they have already read and those they haven’t, and 29.65% of them think they always know how to start a new topic/thread for a new discussion. Lastly only 26.68% agree that the subscription function is efficient and user-friendly. Regarding the level of satisfaction, 56.33% of them are neither satisfied nor unsatisfied with the discussion board. Only 34.5% of them think they are truly satisfied with the system. However, less than 10% (9.17%) of them are actually not satisfied with the system.

### Discussions

### Improvements on the Navigation Design

From the results, it is shown that even there are many features made available to the users, however only 26.67% of them are commonly used. The main reason for not using those features is the users actually do not
know what the features are for, and not many of them agree that the system offers good use of terms to help them to understand the purpose of the feature. According to Tidwell (2011), it is important to ensure the system offering terms that allow the users to scan and pick whatever they think possible rapidly (Tidwell, 2011).

The second reason for users not using the features is they are actually not aware of them. It is proven that displaying many features on a page doesn't necessarily increase the user awareness. When there are too many links for user to view, they need to take time to choose the desired destination. Some suggestions given by the respondents include making the user interface simple and not to include so many functions/features, only make those important or frequently used features to be easily assessed, and show only the courses that the user are enrolled in and remove those irrelevant links from the home page.

The second reason above can also be caused by poor organization of menu options, poor grouping of categories, and unexpected navigation behaviour (e.g. broken link) (Kalbach, 2007). For instance, an inconsistent design includes using two different visual styles for textual hyperlinks, and it is unpredictable as the user could not recognize the hyperlinks easily. It is also very confusing if there are two totally different features given similar names (e.g. Gradebook and Gradebook View), or two same features or given different names (e.g. Unit Documents and Course Documents), therefore the user could not predict the differences between the two. Some students also commented that they encountered some unusable functions (empty links), e.g. when they click the "Assignment" link, but the page returned is empty. To improve, some of the respondents suggested rearranging the outline and the layout of the interface to provide clearer sections/grouping, to remove the empty link from the main menu, to provide a better search engine to aid navigation, and provide shortcuts to avoid the need to have too many clicks to reach a particular function.

Lastly, the third reason for not using the features is due to the users thinking they do not need the features. Some students explained that they have not been given any briefing regarding the LMS when they were new, and therefore they are not aware of the other functions. To increase user awareness of the functions, it is important to provide briefing/training to the users especially novices. However, providing training to a large number of students can be costly. Therefore, a good navigation design could help to increase user awareness, by offering tooltips or help to explain the functions of the features. Besides, user manual or tutorial could be helpful too.

**Improvements on the User Interface Design**

Although most users agree that the LMS layout design and choice of colours are consistent, however many of them commented that the design is outdated and less interesting. They are not attracted by the user interface design, and therefore feel bored with it. Only minority of the users disregards that the user interface is full of features, and many of them think that the interface may appear overwhelming to the users.

The first step in designing a good interface is to understand what jobs that the users are trying to accomplish. User interface design is not about putting the information and laying it out nicely, but the real objective lies in solving the right problem for the users (Tidwell, 2011). Hence, designing an interface that allows them to scan and pick whatever they think possible rapidly could improve the user experience.

The suggestions provided by the respondents to improve the user interface design include designing a simpler user interface, enlarging the font size so that it is readable by all groups of users, providing clear description/instruction wherever necessary, replacing text with appropriate graphics and icons, providing messages any time or in between the process to keep users informed of the status, enabling flexibility to the users to allow them to modify the interface design, always have a “Help” option to inform the users on what to do next, and providing options for the users to view all the links in one page rather than making them to click many times (e.g. site map).

**Improvements on the LMS Discussion Board**

It clearly shows that not many users of the LMS are keen to use its discussion board, especially the instructors. The main reason is they think do not have the need to use it. Furthermore, there is a vicious cycle which the unresponsiveness of the students (or instructors) leads to another that aggravates the problem. Therefore the instructor (or student) may not want to continue to use the discussion board due to unresponsiveness of the others, unless they force the students to respond. In addition, the emergence of other social network platform such as Facebook, which appears to be more attractive and usable, makes the students stay away from the LMS discussion board. A respondent also commented that there are many steps involved to post a forum. For instance, to allow group discussion, the students need to be grouped first by the instructor beforehand, and the
steps to enable grouping are tedious. Most of the users find the discussion board is less attractive and it is limited if compared to other forum site such as vBulletin. To improve the usability of the discussion board, some suggestions given include enabling discussion among all students and instructors in the college (currently it is limited to only those who are enrolled in the course), add more functionality and flexibility such as allowing the users to form group for their own group discussion, enabling the users to save the comment / reply as draft, provide tutorial or user manual to explain the steps, and keep the design up-to-date and as attractive as the current social-networking site.

Conclusion

Navigation design is not just about creating a way to provide access to information, but it is how it should provide access to the users. It should be designed to show users where they are on the site and helps to orient them. Putting a lot of information or features into a page does not necessarily increase user awareness. The research shows that although the LMS has a lot of features to offer, but only less than 30% of them are commonly used. Good use of terms helps users to understand the purpose of the features, and attractive design of user interface will increase user's interest to continue to use the system. User interface design is not about laying out the information nicely, but the real objective is to help the users to complete their tasks easily. A badly designed interface will lead to a low usability of a function and low satisfaction of the users, regardless how good the function is. Well-designed system helps users to achieve their goals, increase their positive affect such as job satisfaction, and decrease their negative emotions such as frustration. This research also shows that although discussion board is provided as a platform that assists in the transfer of knowledge through user interactions, however when there is no proper plan by the instructor and active involvement of users (which can be caused by unusable functionality), this platform will not be effective. Developing a system with good navigation, user interface and usability design is strongly believed to enhance user experience. Good user experience improves user's positive emotional response in virtual learning environment, and it is one of the essential success factors in the e-learning system.

References


Johnson, P. (2003). Top 10 reasons faculty fail when using CMS. Midwest Instruction and Computing Symposium,


Designing Educational Uses Of Technology Beyond Classroom: The Use of Voice Technology To Produce Effective Feedback To Students

Dr Iqbal Akthar
School of Humanities and Social Science
Liverpool John Moores University, United Kingdom
i.akhtar@ljmu.ac.uk

Abstract

Providing feedback to students is a crucial part of learning and teaching in higher education. Good feedback enables students to reflect on what they have produced and motivates them to further improve on their work. Research has shown that written feedback often lacks clarity and in some cases the students simply do not understand what is being suggested (Nicol, 2010) and therefore make it difficult for students to make improvements in their work. This paper aims to look at how tutors can use technology to deliver effective feedback. It argues that voice technology could be used as one of the ways that clear, detailed and effective feedback could be provided to students. Twenty five final year students were interviewed after they have received audio feedback on one of their assignments. All students were positive and excited about getting audio feedback. They claimed that the feedback were able to help them understand their weaknesses and strengths in their work and would be able to make improvements in their future assignments. This research will allow us to understand the effectiveness of using voice technology in our teaching and making feedback more useful for students.

Key words: Audio Feedback, Voice Technology

Introduction

Providing feedback to students is a crucial part of learning and teaching in higher education. It promotes a better learning environment and enhances a student’s self-esteem (Harvey, 2011). Good feedback enables students to reflect on what they have produced and motivates them to further improve on their work. Tang and Harrison (2011) argue that when students received formative feedback, assessment becomes a learning opportunity. In other words, feedback is used to enhance a student’s learning experience and enables them to meet the learning outcomes of the course. Nicol (2010) argues that written feedback often lacks clarity and in some cases the students simply do not understand what is being suggested. Weaver (2006) claims that when the comments are vague, it is difficult for the students to apply them to their work. Duncan’s (2007) research shows similar outcomes. He found that most of the tutors’ comments were unspecific in their criticism and unclear in terms of any explanation of how the students could further improve their work. In other words, feedback is only meaningful when students can make sense of it. This paper aims to look at how tutors can use technology to deliver effective feedback. I argue that voice technology could be used as one of the ways that clear, detailed and effective feedback could be provided to students.

Literature Review

Academics are already using technology to support learning activities. For example, Nortcliffe and Middleton, (2011) look at how new technology is used to enhance the learning experiences of students. They claim that personal smartphones are more suitable than any other form of technology in providing audio feedback to students. Nortcliffe and Middleton use a personal iPhone with the Recorder Pro app to record their feedback and subsequently the audio feedback is emailed to the students as a file attachment. Nortcliffe and Middleton’s research suggests that students prefer to listen to, rather than to read, text. The students were encouraged by the fact that they were able to access their feedback at any time and were able to listen to it over and over again while they made notes. A similar enthusiasm for this method of receiving feedback was shown in my own study.
All the students I interviewed were pleased to be able to access their feedback through the Virtual Learning Environment (VLE) and were particularly impressed at hearing the tutor’s voice. This gave them the feeling that the tutor truly cared about their work; they felt that they were experiencing “the personal touch”. Nortcliffe and Middleton also claim that the students responded positively to the feedback, both in terms of how it is received and by making improvements to their work:

The student surveys and interviews indicated a high usage level amongst those students who had used the feedback. This level of engagement with the feedback, despite it only having been available for six days, at this late stage in the assignment indicates how a dialogic approach, in this case using audio feedback, extends the life of the activity and the learning around it well beyond the submission and marking of the assignment. In other situations this might be expected to be the point at which students disengage with learning from an assignment (p.291).

By providing students with effective feedback through the use of voice technology, academics are able to assist students to achieve a higher-quality learning experience. Instead of students ignoring the feedback given to them, as is indicated in a variety of different assignments, the students in this case seem to actually value and use the feedback. Nortcliffe and Middleton claim that in this case, the tutors were “relatively highly skilled user(s) of learning technology” (p 291). However, “most academic users should be able to distribute audio files more easily using a personal smartphone with a suitable app than they can with either PC or an MP3 recorder.” (ibid). This is an important point to note because it could be argued that not all academic staff are comfortable using technology, let alone using it in their teaching. Nortcliffe and Middleton do add that that academic staff should use whatever form of technology they feel most comfortable with, as long as it further enhances the students’ learning experience.

Like Nortcliffe and Middleton, Lunt and Curran (2010) also employed electronic audio feedback in their teaching. They suggest that the audio feedback offers a positive advantage over written feedback. Using the Audacity audio software, MP3 feedback files were created and sent to students through the VLE and email. Their study into this technology shows that students were keen to listen to the feedback sent to them in this way as opposed to reading written feedback. Lunt and Curran also found that students paid more attention to feedback given via the VLE and email and much preferred this to collecting feedback in person. From the tutor’s perspective too, using the audio feedback is very easy and, above all, it is fast – much quicker than having to type out written feedback. Lunt and Curran’s adoption of audio technology is a good example of students welcoming a different approach to the provision of feedback. They suggest that “the most efficient way to disseminate audio feedback is via a VLE using, if possible, an online submission system.” (p.766). Therefore, taking all this into consideration, I have attempted to use my University’s (Liverpool John Moores University) VLE online submission to provide audio feedback to my own students.

**Research Design**

This study was undertaken to investigate how useful voice technology could be in providing effective feedback to students. As part of the University’s teaching and learning strategies, assignments are to be submitted online, but tutors have the option to mark online and provide audio feedback to students. I decided to mark students’ work online and give audio feedback for one of the core 12 credit, level 6 modules I was teaching. Students submitted their assignments through the University’s VLE.

Students appear to have no problem with submitting their work on the VLE; they were given clear instructions on how to post their work there, and at the same time they were told that they would receive audio feedback on their work. I marked their assignments with brief written comments and also provided audio feedback, which normally lasted for approximately one minute.

Online interviews were employed for this study. I put up an announcement on the VLE for students to take part on this study. I gave an outline of the study and explained to the students that it would have no bearing on their marks. A consent form was uploaded onto the University VLE and those interested were invited to download the form, complete it and let me know when it would be convenient for me to contact them. I received a total of twenty five forms in all. Once I had provided the students with both their written and audio feedback, I contacted the participants to conduct semi-structured interviews. Skype (video-conferencing) was used to conduct the interviews.
Results and Discussion

Thematic analysis of the data was applied. Three main themes emerged from the interviews relating to the use of technology in providing feedback. They were as follows: the usefulness of audio feedback, how it affects motivation and, finally, the outcome of the audio feedback. These themes are discussed in detail below.

Usefulness of audio feedback

King et al. (2008) carried out a study on audio technology. Their research shows that providing audio feedback to students can improve the quality and the quantity of that feedback. They concluded that audio technology could be seen as an alternative to traditional, text based feedback. Similarly, the work done by Merry and Orsmond (2008) shows that students respond positively to audio feedback, reporting that it was easier to understand, contained more depth and provided a more personalised approach. The students in their research reported that they would use the feedback to improve on their subsequent assignments and that they had learned the importance taking tutors’ comments on board. The general perception of the students in my research was that they found audio feedback to be a new and interesting way of receiving feedback from their tutor. They also felt the feedback gave them a better understanding of how their work was marked and that it would lead them to improve on their future assignments. One of the important advantages of receiving audio feedback, they claimed, was that it was clear and, if required, they could replay the feedback to fully understand what was being said.

“The audio feedback is useful because i can get to listen it repeatedly especially when i am doing my next assignments. i know where very clearly my weaknesses and strengths are” [student A]

“I feel in that few seconds i get to hear a lot of important pointers to work on my another assignments. it was loud and clear. I think all tutors must this new technology so that we can understand where we went wrong.” [Student B]

“The feedback was very straightforward, in detailed. It gives me a very good idea where I went wrong and what I should have done better in order to get higher marks.”[Student C]

From these abstracts, it suggests that students have achieved a greater depth of understanding of what the tutor is trying to say. It also suggests how students see the audio feedback as a record of learning that they can re-visit and learn from and apply to other assignments. These students also felt that, within a short period of time (few seconds), they had received comprehensive feedback that they were able to understand. Students also claimed that they made sure they listened to the feedback closely as they knew it would give them “important pointers” for future improvement.

Motivation

Nearly all the students expressed excitement upon receiving audio feedback. Students also felt that it was a good way of motivating them to work on future assignments.

“The feedback i received was very precise explaining to me how to improve my work, so even though i did not get good marks, I was able to work harder on my work.” [Student D]

“When I hear the tutor voice i feel a bit calm as the tone of the tutor was not harsh so even though i was upset with the marks, but the tutor explained in such a way i feel there is hope for me” [Student E]

“Sometimes I feel the tutor has so much to say and I feel that he was rushing through the comments. But with audio feedback I was able to listen over again and could get what the tutor was saying.” [Student F]

One of the key factors of giving effective feedback is motivation (Chetwynd & Donnyn, 2011): motivating students to work on their short comings and at the same time motivating them to exceed their basic standard (ibid, p.68). Rodway-Dyer et. al (2011) argue that when giving audio feedback one must be aware of tone of voice and style of presentation. This is because some students may interpret the tone and style of the tutor’s voice in a way that was not intended. Furthermore, the correct pace of speech is important. Although, as student F remarks, even if the tutor is speaking too fast, the audio feedback can be re-run as many times as necessary. There is also a danger that, with constant repetition of the same comments, the tutor could end up sounding grumpy, or if the tutor speaks too slowly he or she may sound condescending or pedantic (Rodway-Dyer et. al,
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2011, p. 228). Therefore, while some tutors do find audio feedback to be an effective way of ‘reaching’ students and encouraging them to reflect on the feedback given, they must be aware that it must be delivered with the correct tone of voice. Tone can play a positive part as well: using emphasis, a tutor can signal to a student where particular work is required. But tutors also need to understand that students are not expecting the audio feedback to be perfect; tutors may pause or stutter and this has the advantage of aligning the feedback with real conversation between a student and tutor.

Outcome of the audio feedback

The majority of students felt that audio feedback is a good way of receiving feedback on their work. It is important to note here that students do recognise audio feedback a new and innovative method of learning and teaching. They also see it as a quick and productive way of receiving the feedback.

“This is a new way of learning and teaching. In the past I have so much difficulties in reading the comments of the tutor and so afraid to see the tutor for explanation. Now, with audio feedback, I don’t have to worry about trying to read the tutor’s comments.” [Student G]

“I do not have to wait to collect my work and read the comments. I was outside when my friend text me that the results was on the Blackboard and so immediately I check my result and hear the comments on my work.” [Student H]

“The good thing of audio feedback is that I do not have to meet my tutor. Maybe because I am afraid to meet my tutor so I just ignore the feedback and then I make the same mistakes. But with this I will listen to the feedback before I start the next assignment.” [Student I]

The impact of this is that students get to see the importance of feedback and acknowledge that it is useful to them. With the use of technology, therefore, tutors are finally able to generate interest amongst students and get them to fully utilise the feedback given to them and, above all, inspire them to learn. Weaver (2006) claims that students do value feedback and therefore effective feedback on the assignments is important. The use of technology can be seen as an inspiration to both tutors and students.

Conclusion

Technology has a great potential in education. It can be applied in different situations to meet different needs and expectations. In this paper, it has been highlighted how, through the use of voice technology, either through VLE or personal smartphones, one can deliver quick and highly effective feedback to students. This short study shows the importance voice technology in helping to produce effective feedback. All the students in the study were positive about getting feedback in this manner. Only one student expressed the need to have both audio and written feedback. On the whole, the students were excited about the use of such technology to enhance learning beyond the classroom. Not only did they find the audio feedback innovative, it also appeared to motivate them to work on future assignments. The students also felt that they had received more feedback than they had expected. As most students are competent users of technology, they will have no problems embracing this new mode of feedback. As long as it provides them with an opportunity to improve on their work they will be happy. And in the long run, it seems, this new mode of providing feedback does promote a positive attitude to learning.

Further research on the tutors’ perspective in using voice technology would be useful. It would also be interesting to consider what other new technologies might be used to provide feedback or to create new and innovative ways of teaching students. Would video technology be useful in providing feedback to students as suggested by Cook, A. et al. (2012)? Is there a way in which students and tutors can engage together in the process of giving feedback? Future research into any of these areas may help to enhance the learning experience of students.

References


Engagement of Digital Natives in The Development Of Learning Content For Open Educational Resources

Mais M. Fatayer
School of Computing, Engineering and Mathematics
University of Western Sydney, Australia
m.fatayer@uws.edu.au

Abstract

Open Educational Resources (OER) has gained widespread recognition in higher education. Universities around the world started to create and share their intellectual property through open educational resources since 2002. However, sustainability is a main challenge that the OER movement faces, and finding a self-sustaining model is among the anticipated solutions. This paper proposes a new development model for building learning resources for OER. The model taps into student-generated content which the students create as part of study units, and repurpose the creation process toward building learning resources that can be shared through OER. The model offers students the opportunity to contribute to knowledge construction of OER, and engages them actively in building their own learning experience.

This paper is part of a PhD research at the University of Western Sydney. The paper presents the theoretical framework of the proposed model, and explains the three stages of the development model. Design-based research methodology is employed to help the research process. The research includes two iterations of students’ engagement in constructing the learning content for OER and took place at the University of Western Sydney during two academic semesters.

Keywords: Open Educational Resources, Student-generated Content, Digital Natives, Cognitive Surplus

Introduction

The relatively new term Open Educational Resources (OER) has been defined as the digitized materials offered in the public domain for learners, educators and self-learner to use, remix, reuse and repurpose for teaching, learning and research, without an accompanying need to pay any fees, and they are usually, but not exclusively, licensed using Creative Commons licenses (West & Victor, 2011). The first open learning content was announced in 1998, when David Wiley launched the OpenContent project, working on the premise that educational content should be developed and shared freely and openly as in free software philosophy, which the last originated in 1983 when Richard Stallman announced the foundation of the GNU project (Caswell, Henson, Jensen, & Wiley, 2008).

Since 2002, OER (a term coined at UNESCO’s Forum on the Impact of Open Courseware for Higher Education in Developing Countries) has played a key role in both teaching and learning in higher education (Atkins, Brown, & Hammond, 2007; Hodgkinson-Williams, 2010; McAndrew, 2010; West & Victor, 2011). Advancing knowledge and prompting sharing of knowledge in formal and informal learning communities are among the benefits of OER. Sharing learning content freely means broader and faster dissemination and more people have access, which in turn can potentially lead to an improvement in technical and scientific development among content developers. In addition to increased publicity and reputation of the hosting institution, there is also the pleasure of sharing with peers (Hylén, 2006). Cutting the costs of enrolment and transportation for learners, and finding new effective learning approaches for the few hundreds of people who are outside the formal education system are also of the realised benefits of OER (West & Victor, 2011).

Many OER projects have been initiated in different countries around the world, including the United States of America, Spain, United Kingdom, Netherlands, France, South Africa, Saudi Arabia, Japan, China, Australia and New Zealand (The OpenCourseWare Consortium, 2012). The majority of the projects are hosted in higher educational institutions that realized early the benefits of OER in higher education, and started to share their
educational material free of charge. Massachusetts Institute of Technology, The Open University of the United Kingdom, The Open University of Netherlands, Utah State University, University of Cape Town and Johns Hopkins Bloomberg School of Public Health are among the pioneers in the OER movement. The Open Courseware consortium serves as a resource for starting and sustaining open courseware projects, both as a coordinating body for the movement on a global scale, as well as a forum for the exchange of ideas and future planning (The OpenCourseWare Consortium, 2012).

However, many initiatives were discontinued due to lack of funding, academics reservation about their intellectual property, and questions about the quality of the material produced. Even though comprehensive research (D’Antoni & Savage, 2009, pp. 68-72; Hodgkinson-Williams, 2010) have shown the barriers that make academics reluctant about sharing their learning content freely on the Internet, where intellectual property form a considerable and a significant part of almost all OER projects, there is a need to find alternative solutions to engage academics in OER content creation and invite new community members to contribute to these projects. Engaging users’ community in content construction of OER is not a new development model. However, few OER model engaged students in developing learning resources for OER, and to date little research had investigated the quality of student-generated content to be reused as effective learning resources via OER.

This paper is part of a larger research that proposes a new OER development model. The model invites university’s students to contribute to knowledge construction of OER in order to maintain sustainability of OER projects. Young students at the age group 18-24, nowadays known as Digital Natives (Prensky, 2001a), claim proficiency in using new technologies. The term Digital Natives was coined in 2001 (Prensky, 2001b). It refers to new generations who were born with technology surrounding them everywhere. Those who spend their times communicating with the world through the wide range of gadgets, and who have less reluctance to discover new technologies. The way of thinking of Digital Natives is different to their teachers and parents, and new learning styles may need to be designed specifically for the digital learners (Prensky, 2001b). While this paper provides a preliminary understanding of the debate about the Digital Natives’ learning needs, it also suggests adopting new roles for the young students in educational system to become knowledge consumers and producers.

The research study will look at the cognitive surplus (Shirky, 2010) of Digital Natives inside and outside classrooms. The new term, cognitive surplus was first described by Clay Shirky as the huge number of hours people spent on the Internet producing creative acts with the advent of online authoring tools that allow collaborative work. Shirky noted that intrinsic motives are what invite people to create and share their creative work. What this research is aiming at; is harnessing the cognitive surplus around young students. One way can be by engaging them in building learning content for OER. In this way, they will learn and become more actively involved in the educational systems and hopefully, the process may offer a new sustainable model for OER development.

Digital Natives and our educational systems

Nowadays young people are using the technology and building experiences differently from their predecessors. The matter that has been encouraging research toward understanding the emerging habits of young people and their use of technology in daily life and in the educational system (Bennett, Maton, & Kervin, 2008; Bennett & Matont, 2010; Kennedy, Judd, Churchward, Gray, & Krause, 2008; Prensky, 2001c; Small & Vorgan, 2008; Tapscott & Ebrary, 1998). Digital Natives (Prensky, 2001a), or Net Generation (Tapscott & Ebrary, 1998) can be smart, creative, competent and efficient in finding solutions; they are also able to communicate with others in different media and can easily switch from text, to voice to visual communication. Both Small and Vorgan (2008) and Vassileva (2008) agree on the similar characteristics of the Digital Natives as follows:

- Fast and only allow seconds to make a decision
- Define a new culture of communication through computer-based social networking websites
- Desire to be connected with friends all the time

Carlson(2005) showed that academics, trend spotters and futurist definitions about the Net Generation have some common characteristics and summarised that:

- They are smart but impatient
- Take control over their learning process
- Consume and learn from a wide variety of media, often simultaneously
On the other hand, debate and criticisms toward Digital Natives were also found in the literature. Many Digital Natives tend to have shorter attention span, especially when faced with traditional learning. Educators complain that young people are less efficient in their school work (J. Vassileva, 2009). Their brains are wiring up for rapid-fire cyber search, neural circuitry and some parts of the brain that normally adapt to more traditional learning methods, are becoming less developed. They also acknowledge that classroom learning and customary lecture and note-taking seem boring to them (Small & Vorgan, 2008, pp. 25-26).

Digital Natives were found to spend more than eight hours exposing their brain to digital technologies, which makes their brains not developing the traditional face to face communication skills. Some of the young generation have been adversely affected by information and communication technology in almost every aspect of their lives, for example; Internet addiction disorder (Small & Vorgan, 2008, pp. 30, 47-62). Digital Natives are tempted by technology to multitask all the time, some cannot be watching the television without surfing the net, and others listen to music while using some software applications. However, a research study showed that brain efficiency decreases 50 percent when switching back and forth between two tasks, compared with completing just a single task at a time (Jones & Hosein, 2010), and quite often limits productivity that can lead to stress, anxiety, inefficiency, and impaired memory ability of these Digital Natives (Small & Vorgan, 2008, p. 137).

In a tough criticism, where many educators are expecting them to come across classes ready and prepared to hit the ground running using the technology, they were surprised by the lack of skills some Digital Natives possess. With all the debate, there is a need to develop a more sophisticated understanding of students’ experiences of technology (Bennett & Matont, 2010). While Digital Natives have spent enormous time immersed in technology, they are not demonstrating that they can apply these skills to enhance their learning. Therefore engaging them in knowledge construction of learning resources and getting them to understand about OER can assist in enhancing their learning performance. The question that remains is how can the educational system help them to take responsibility for enhancing their own learning.

The educational system needs to cope with these changes of the new generations, and this requires new strategies. A study in Australia of the information-seeking behaviour of the Net Generation (Combes, 2008) has concluded:

*If schools don’t take steps to teach this generation of students how to use electronic sources effectively, then our future citizens will be unable to operate in a world where information is the key to educational, social and economic success. The world and technology will continue to move forward and the information landscape will become more complicated, overloaded and dense, as business and government place everything including service delivery online.*

The involvement of Digital Natives in creating the learning material can be a crucial step to improve learning styles for young generations entering universities.

Digital immigrants learned slowly, individually and in a serious manner and trying to apply these rules on the Digital Natives that matters makes the whole educational process even harder and not fruitful. Bannet and Maton (2010) suggest that there is a need to a fundamental empirical research based on existing theoretical foundation to understand the needs of ‘tech-savvy’ learners and give them what they deserve of technology enhanced education. We still keep the legacy educational system in many schools and universities. This is similar to having the digital gap between two generations, teachers and students, where many of the universities are still adopting the traditional learning style. While Digital Natives are living in an era where social technology is playing a vital role in their daily lives, using the traditional learning can be boring for them. They are used to posting questions and receiving many answers from different people all over the world, sometimes instantaneously and other times asynchronously. This makes the traditional learning perceived to be at a far too slow pace for them. Cede control by building learning experiences and developing the educational content can adapt to Digital Natives’ needs, in a way which will engage them in the educational system.

**Student-generated content**

Student-generated contents, including assignments, projects, essays, presentations and experiments are examples of students’ achievements in higher education. Most of these are used to evaluate the student’s learning performance. A few research pointed to the benefits of student-generated content. Sener (2007) explained that real examples of good student-generated content are also hard to find. This is obviously an indication of lack of faculty awareness of the importance of this type of content.
Before proceeding with solutions in order to raise the awareness of the importance of student-generated content in our educational system, it is important first to shed some lights on the benefits of this type of content:

1. Students’ benefit:
   a. Autonomy and ownership when creating the content.
   b. Students can build e-Portfolios as they go through the university years.
   c. Publishing at early stage via open access websites.
   d. Participating in online knowledge construction communities.
   e. Engage students in learning process as knowledge consumer and producer.

2. Academic benefits:
   a. Improve quality of learning process through new learning design approach which can lead to better learning outcomes.
   b. Collaboration between students and teachers around the knowledge construction.
   c. Adapting teacher’s role to facilitate the tasks carried out by students.

3. Institutional benefits:
   a. Effective use of technology and eLearning solutions in educational institutions.
   b. Present real examples to the community representing graduates attributes in using new technology tools especially when shared online.

Nowadays, the majority of student-generated content are created using available digital authoring tools, which makes the content shareable via online communities. Through student-generated content, a student can create a learning resource, share it first with other students for peer review, and then get the teacher’s feedback to improve learning design quality and accuracy of the information. The whole process will end with some student-generated content examples that are ready to be shared online, or shared via OER. Establishing OER that is based on the knowledge construction of student-generated content can improve critical thinking for students when participating in peer review of other students’ work, improve feedback quality and diversity from peers and teachers, and establishing a global presence for an institution in OER communities.

Engagement of Digital Natives in Educational System

Many academics agree that we learn better when we teach. Explaining a concept to help others understand is also a method of self-learning. For example “Peer tutoring” is where more experienced students involve in teaching novice students in a collaborative learning (Beasley, 1997). Academic support through “peer tutoring” has many educational benefits. As well as being cost effective by providing academic support to students through the use of valuable teaching and learning resources, engaging students in teaching can help enhance self-esteem, through achievements and taking responsibility of enhancing their own learning.

One example of student-generated content may be found from the students’ forums at Arab Open University – Saudi Arabia, where students create learning resources for each other, collaboratively, but interestingly, autonomously (See www.aoua.com forums). Another example from the same country involves a group of 13 students from the College of Computer and Information Sciences at King Saud University who collaborated to provide a comprehensive Arabic translation for an Operating Systems book. This became an important learning resource for Operating Systems courses being taught at this university and many other universities in the country. This group of students have released the Operating System e-book in the Arabic language in 2008 via Scribd.com website. According to Scribd.com statistics this eBook has been downloaded more than13,500 times (OS-EBook, 2008).

The last example to shed some lights on is the “Peer Learning and Supplemental Instruction”. The model was first implemented at the University of Missouri, Kansas City in 1973 and has now been adopted by many universities worldwide. In this model more experienced students take on tutors roles and help their peers in understanding some of the university courses in face-to-face sessions. A similar model, the Peer Assisted Study Sessions (PASS) program has been introduced at the University of Western Sydney to help improve students’ learning in different subjects. Expert students, who are known to have successfully completed the offered courses voluntarily facilitated the PASS classes and helped the attendees in a collaborative environment to enhance their academic work. Kirkwood (Kirkwood, 2006), suggest ‘cede control’ by giving students a platform within educational institutions to form a community and have a voice and ‘let them do the building’ will engage students effectively in learning process. In his book, “Cognitive Surplus: Creativity and Generosity in a Connected Age”, Shirky (2010) talked about many examples of human generosity, and one of the lessons learned that he mentioned is:
“If you give people a way to act on their desire for autonomy and competence or generosity and sharing, they might take you up on it”

The accumulated outcome of student-generated content at each academic semester increases the size, but not the value, of the unutilized collective intelligence. This urges a systematic approach to utilize this type of cognitive surplus inside classrooms, so that the educational community can benefit from the students’ knowledge construction. The OER communities welcome knowledge sharing; however, quality of the content is crucial to these communities.

**OER development model**

The OER development model proposed in this paper suggests establishing the environment for communities of practice (Wenger, 2006) around OER. University students will individually or collaboratively work on building learning content that will be evaluated and published through an OER repository. Students will be provided with eLearning authoring toolkits to help them build the learning content. However, their work will be facilitated and overseen by academics. The academics will provide direction to students on using learning standards, following learning design principles and will provide feedback about the learning content created. After the learning content has been evaluated by the academics and other students and is ready to be shared, the authoring student(s) will be encouraged to associate their work with an open license in order to publish via OER. The OER will be accessible by university students through the Learning Management System - vUWS, where the learning resources will be hosted in the Content Repository of the vUWS.

Many courses require students to submit a project that will be evaluated later by responsible academic teachers or tutors. Projects are being assessed and marks returned back to students along with feedback documents. Even though project-based learning and documented feedback improve learning for students, it is often still a “student to teacher” relationship. Where feedback is only sent to one student and typically neither the project nor the feedback is shared among other students, or giving other students the opportunity to learn from each other. This model will incorporate other opportunities to learn including “student to student” learning relationships.

The proposition is to invite students, most of whom will be Digital Natives, to take effective roles in the content development process and knowledge sharing as a part of their learning experience. The instructors who are described as Digital Immigrants will act as facilitators and evaluators of the learning resources development. At this stage, students will have the opportunity to become actively involved in the learning process as knowledge consumer-producer, rather than being passive consumers, and learning will become more student-centered. The aim is to repurpose the cognitive surplus of young students through harnessing their time, talent, technical skills and motives in the knowledge construction. Several studies pointed at the benefits of engaging users in building learning resources (Bull et al., 2008; Kirkwood, 2006; Mason & Rennie, 2008). Mason and Rennie (2008) highlighted that young users will soon become knowledge constructors using the technology tools available, rather than being consumers of the content. The benefits include saving costs of expert users to modify and update the content; developing teamwork skills using the new collaborative authoring tools; and motivating users to learn through online internet communities (Mason & Rennie, 2008). In the proposed model, students will redirect cognitive surplus they have towards developing learning resources using authoring tools which are easy to learn, interesting to use, can produce a stunning final product; and tempt the Digital Natives to be published at early stages of their careers. Figure 1 illustrate the design model of OER development.

![Figure 1: OER Development Model](image-url)
In this design model, OER development takes place in three stages.

**Stage 1: Building Content**

Students will work individually or collaboratively on project assignments as a part of a selected study unit. They will be provided with eLearning authoring tools, and will get support from academics in order to apply proper learning design principles and standards in creating learning resources. Student will be motivated with exemplars. Research suggests that what motivates different groups of people to create and share with all community members are intrinsic motives rather than extrinsic ones. Such incentives include autonomy, competency, feelings of control, level of difficulty, connectedness or membership, sharing and generosity (Deci, Koestner, & Ryan, 1999; Kirkwood, 2006; Pink, 2009, 2010; Shirky, 2010). Output of this stage is the learning resources which will require further academic review and feedback. At this stage, data will be collected using online survey about the types of cognitive surplus around participating students. The results will be compared with student-generated learning content, and will require a further investigation into the relationship between the quality, diversity and creativity of student-generated content and the existence of cognitive surplus around these students.

**Stage 2: Evaluation**

Academics will take a significant part in this stage. The academics will work as evaluators and facilitators of the process and outcomes. Through guiding the creation of reusable learning resources and help applying learning design, academics can help produce the anticipated quality content. Where the academics role is significant in quality assurance, on the other hand, the students will be judging whether the produced learning content is useful. This is an area which needs further research (Hylén, 2006). Finally, learning content will be ready to be published.

**Stage 3: Publishing.**

The Learning Management System vUWS will be used to host the learning resources produced. The resources will be available for students within the university to use, reuse and repurpose. Intellectual property and licensing of learning content will be maintained by a stamp of Creative Commons that will describe the terms of the usageof the learning content as a choice of the student or in this model, the author. The proposed model will be evaluated during a pilot study and two further iterations for potential implementation in other higher educational institutions. The model aims at reducing development costs, engaging Digital Natives in knowledge construction in universities, and bridging the gap between the generations of Digital Natives and Digital Immigrants by creating the environment for community of practice around OER development.

**Conclusion**

OERs are contributing to advancing learning in both formal and informal styles of learning. This would give opportunities to learners around the world to benefit from the knowledge construction from the best available minds in subject areas, especially when the learning resources are being associated with a reputable institution’s name. OERs are not only offering high quality learning for people who cannot afford it, due to cost or location barriers, but also to those learners who demand depth and breadth of learning. On the other hand, OER are generating global presence and publicity, mainly for universities who are adopting the movement (Combes, 2009). Students are forming the largest human intellectual property on a university campus, and engaging them into educational life is a major demand by most institutions, as engagement is known to improve learning quality and learning outcomes. Inviting students to take part in contributing to the knowledge construction of OER is a new form of engagement inside higher educational institutions which could be a promising path for the sustainability of OER projects and services.

**References**


Sener, J. (2007). In Search of Student-Generated Content in Online Education. *e-Mentor*.


The OpenCourseWare Consortium. (2012), from [http://www.ocwconsortium.org/](http://www.ocwconsortium.org/)


West, P. G., & Victor, L. (2011). Background and action paper on OER.
Gamification is the utilisation of game-mechanics and game-solving methods to engage audience. It is applied to commonplace activities where such activity is not commonly associated with the nature of game play, for example, learning mathematics, undertaking science laboratory experiments, completing a spreadsheet and designing software algorithms. Fundamentally, gamification of a specific learning activity does not modify the material content, but enhance the value of the learning activity. This inherently becomes the motivation for students to undertake the learning activity in order to solve the given problem space. In this position paper, the framework of a commonplace learning activity will be formalised and expanded to include the application of gamification. The groundwork for gamification is then adopted in a competitive arena. Competitive arenas are a well-defined problem space that provides well-structured problems to allow students to carry out test and multiple attempts at solving the given challenge. Similarly to competitive sports (hence, the name arena), the competitive nature of the problem space engages and drives students to be involved in the learning activity. Three case studies are discussed that demonstrates the viability and initial attempts in the application of gamification in the context of educational robotics. This includes urban search and rescue, soccer playing robots and problem based arena.

Keywords: gamification, courses, robotics, competitive, arenas, education technology

Introduction

Gamification is the utilisation of game-mechanics and game-solving methods to engage audience. It is applied to commonplace activities where such activity is not commonly associated with the nature of game play, for example, learning mathematics, undertaking science laboratory experiments, completing a spreadsheet and designing software algorithms. Fundamentally, gamification of a specific learning activity does not modify the material content, but enhance the value of the learning activity. This inherently becomes the motivation for students to undertake the learning activity in order to solve the given problem space. In this position paper, a framework of commonplace learning activity will be formalised and expanded to include the application of gamification. Gamification is then adopted in a competitive arena. Competitive arenas are a well-defined problem space that provide well-structured problems to allow students to carry out test and multiple attempts at solving the given challenge. Similar to competitive sports (hence, the name arena), the competitive nature of the problem space engages and drives the students to be involved in the learning activity. Three case studies are discussed that demonstrates the viability and initial attempts in the application of gamification in the context of educational robotics. This includes urban search and rescue, soccer playing robots and problem based arena.
Gamification

For the purpose of our discussion, the goal of gamification is the application of the mechanics of game play to a commonplace learning activity. This allows learning activities within a non-gaming context to be consolidated into a framework where the parameters found in conventional game play can be applied. These parameters can include motivation, a scoring process, adjudication, a structure for feedback, self-managed accessibility to different levels of challenges, leaderboards and group interaction. Gamification as defined by Zichermann and Cunningham (2011) is:

The process of game-thinking and game mechanics to engage users and solve problems.

Zichermann and Cunningham (2011), Lazzaro (2004) and Koster (2004) provides the rationale and practical results behind the purpose of gamification. From the above list of parameters, the most prominent is motivation, which turns banal learning activities into a version that drives students to undertake learning beyond what is required of the pedagogy. Hence, motivation of student learning is by far the most accepted justification of adapting a learning activity into game-like activities.

Framework for gamification

This section provides the framework for gamification which the work presented in this position paper is based upon. Figure 1(a) shows a conventional learning activity at its most fundamental level. The process can be formalised as

\[ \text{Environment (E)} = P \rightarrow A \rightarrow O \rightarrow S \] (1)

where, Environment(E) is student learning that takes place in a specific known environment. In this case, Environment(E) refers to conventional learning environment as can be found, for example, a conventional classroom. \( P \) is the problem space (e.g. questions, exercises, homework), \( A \) is the attempt at solution (i.e. the effort of students learning and the application of the learning), \( O \) is the demonstrable output provided by the student, and \( S \) is the assessment of the output (i.e. marks, score, feedback provided by the teacher). Extracting \( A \rightarrow O \) from (1), we can formalise as follows,

\[ \text{Learning (L)} = A \rightarrow O \] (2)

where, Learning(L) is the learning outcome of a student who applies his/her learning to provide a demonstrable outcome. Hence, we obtain the conventional learning framework in the following expression that is depicted figuratively in Figure 1(a),

\[ \text{Environment (E)} = P \rightarrow \text{Learning (L)} \rightarrow A \] (3)

Fig. 1. (a) Framework of commonplace learning activity. (b) Framework of learning activity that has been gamified.
Gamification is the process of encapsulating Learning (L) in a modified version of Environment (E) by adopting game-playing mechanics. The gamification effort however should not impede on the content of the subject material, and should only change the value of the content material. The value provides the motivation to the student to undertake a learning activity they may not like in order to achieve a coveted goal. Figure 1(b) is the framework for gamification of commonplace learning activity. We modify (3),

\[
\text{Environment}_G (L) = C \rightarrow \text{Learning}_G (L) \rightarrow D \rightarrow S
\]

where, Environment$_G (L)$ is the modified learning environment that incorporates gaming-mechanics, $C$ is the problem space (i.e. structured problem defined by extended set of rules), $D$ is the adjudication process as governed by the set of rules given in the challenge space, and $S$ is the score given as the result of the post-adjudication process. Gamification causes the learning to be iterated, hence enhancing the learning activity. This effect can be formalised as,

\[
\text{Learning}_G (L) = A \rightarrow O \rightarrow B \rightarrow I
\]

where, $A$ and $O$ remains unchanged from (2), $B$ is the observation of the demonstrable output and $I$ is improvement the student repeatedly attempts to apply to $A$ in order to obtain a more accurate $O$. And since (5) is iterated, Learning$_G (L)$ is represented by,

\[
\text{Learning}_{G_{t+1}} (\text{Learning}_{G_t} (L)).
\]

Therefore, the gamification of a commonplace learning activity can be formalised as,

\[
\text{Environment}_{G_t} (L_t) = C_t \rightarrow \text{Learning}_{G_{t+1}} (\text{Learning}_{G_{t+1}} (L_t)) \rightarrow D_t \rightarrow S_t
\]

The proceeding is depicted figuratively in Figure 1(b).

**Gamification in a competitive arena**

While gamification allows commonplace learning activity to be modified into a learning environment that enhances a student’s learning, it may be an individual or an individual group activity. Bartle’s (1996) seminal work on multi-player games showed that games played in a competitive arena elicit further and extended involvement of all participants, increasing the competitiveness nature of games. Gamification in a competitive arena is depicted in Figure 2. Repetitive instances of Learning$_G (L)$ co-exist in a larger version of Environment$_G (L)$. This allows for a larger problem space that allows for a singular $C$ (challenge) to be scaled up to accommodate an increased number of participants without compromising on the value of the learning experience.

**Case study: educational robotics in competitive arenas**

While the practice of using robots as an educational tool to introduce, teach and promote technologically based subjects is a recent development, the concept itself dates back to the foundational work carried out by Papert (Druin & Hendler, 2000; Papert, 1994). Educational robotics is an ideal vehicle used for teaching technical, scientific and engineering related subjects. A robot is the physical embodiment of multidisciplinary areas ranging from every scientific and technical discipline - providing a holistic platform for all scientific and technical subjects to co-exist in a single cohesive physical entity. Building upon the principles of Papert and based upon the concept of gamification, the authors of this position paper and collaborators have implemented Project Mindstorm at Central Queensland University since 2002 (Chiou, 2004). The project’s main objective is to apply educational robotics for the enhancement of learning technical subject such as mathematics, science and technology. As educational robotics is gaining popularity and inevitably become a commonplace learning activity (Chiou, Lye, Lal & Wong, 2011), gamification have been applied to further enhance the value of the content material (Lye, Wong & Chiou, 2012).

The following case studies present educational robotics in the context of gamification. Each challenge is defined and regulated by a set of requirements and rules. Fundamentally, these are games utilising robotic kits to solve the problem space as presented by the challenges. Many such challenges have been attempted for the past decade and the authors have found that the following challenges were the best suited as enhanced learning activity. The case studies include challenges in urban search and rescue, soccer playing robots and problem based arena.
Case study 1: Search and detection in urban search and rescue (USAR)

C = “This challenge aims to provide a proficient solution towards the incapability of learning problem in autonomous agents. By exploring bio-inspired artificial intelligence techniques, this study proposes a hybrid control system architecture for an autonomous mobile robot intended for the application of search and detection”.

To demonstrate the workability of the proposed system, a high-fidelity prototyped robot will be developed for experimentation on a test arena and simulation. The expected outcome will be an autonomous mobile robot exhibiting the ability to control, learn and make its own decisions in a dynamic environment fill with uncertainties, obstacles, unstructured terrain and loose debris. To implement the experimentation on a manageable and controlled level, a scaled down environment (i.e. test arena) have been built to specifically cater to each of the required test. Search and rescue robots are tested in three arenas based on a scaled down and modified version on three levels of difficulty (Chiou, 2010; Chiou & Wynn, 2009; Jacoff, Messina & Evans, 2000, 2001). The arena is made up of challenge tiles, each measuring (50cm x 50cm). The recommended scale for scaled down test robots to operate on the arena is 1:4 to 1:6. Obstacles are proliferated across the tiles, where each obstacle is color coded to allow for identification and image processing purposes as in Figure 3(a). In this way, the test arena provides the necessary physical test parameters to allow navigation, search, detection and identification. By using a geomorphic layout, the physical test arena can be re-used without rebuilding the test environment. At present, the test arena consists of 16 prefabricated challenge tiles representing the most common debris, obstacles and challenges. The test robot in this particular test is only required to overcome the physical obstacles, search and subsequently detect critical units (e.g. victims). By using color coded physical units and obstacles, it minimises the need to intelligently recognize (i.e. image process or pattern recognize) objects it comes across, hence minimising the need to intelligently traverse the arena. Therefore, by reducing the requirementsit allows students to isolate specific problem areas before tackling more complicated challenges. Upon completion of the task based on color coding, students can progress to the more complex task of search and detection without the assistance of color coding. The more complex test arena, units and obstacles are colored uniformly in gray. In this way, the student will need to demonstrate a comprehensive level of knowledge to tackle the task.
Fig. 3. (a) A complex geomorphic 3-dimensional scaled test arena. The arena ‘tiles’ can be re-arranged to configure a new arena challenge. (b) Simplification in test arenas can be achieved by providing color coding to units and physical objects. For example, miniature effigy in red can represent human victim analogs while yellow colored objects can represent moveable objects.

**Case study 2: RoboCup Junior Soccer**

$C = “$The purpose of this challenge is to design and develop intelligent autonomous soccer playing robots”. $”

Based on the rules defined in RoboCup Junior (2013) event, a team consisting of two autonomous robots will play against another team. The competition is played on a soccer arena (Figure 4.). In order to participate, the participants will need to design, develop and construct two autonomous robots for the purpose of playing soccer in the arena. The soccer robots should also be programmed to function at a moderate or advance level utilizing either linear or computational intelligent control methods. However, due to advanced prerequisites required, younger competitors may have limited access on how to undertake the task required to produce a working soccer robot.

Fig. 4. Soccer arena based on the RoboCup Junior competition. A match consists of two autonomous soccer bots playing against two other robot opponents. The coloured coded arena assist in navigation and positioning.

**Case study 3: Problem based arena (PBA)**

The purpose of this project is design, construct and provide computational intelligent methods in the development of autonomous robots to address specific challenges. In this regards, the objective is similar to search and detection in the USAR as described in Case Study 1. In problem based arena (PBA) however, the outcome is for autonomous robots to substitute in-situ or support human-intensive labor. PBA addresses challenges that have been previously resolved by human operators, where the critical challenge is to minimise human involvement. The purpose of this type of arena testing is to allow the participants to apply their expertise in a known problem area. By deploying this as a test arena, it supports a solution based approach expeditiously
without the constant need for field testing. The following project employs test arena to detect and control mobile pests (e.g. cane toads in Queensland). Despite on-going attempts and current research to utilize intelligent systems technology to both provide advice on pest control strategies and to monitor pests, the actual execution of the control and management task is ultimately manual driven and labor intensive. In an attempt to substitute human labor with automated mechanized devices, autonomous mobile robots have been one of the most popular choices. A specialized test arena is developed based on the geomorphic design described in Case Study 1. In this specific arena, the challenge tiles have been substituted with appropriate obstacles and units to model and simulate an eco-system. In this specific PBA, the participants are expected to design and develop both the hunter and prey (i.e. pest) robots.

![Diagram of test arena](image)

Fig. 5. Problem based arena (PBA) attempts to provide a test arena to address labor-intensive challenges that have been previously resolved (a) and provide a solution to substitute labor with autonomous robots (b).

**Results**

This section reports on the result of initial findings of gamification as applied to educational robotics in a competitive arena. This case study attempts to chart the pathway taken by students over a period of eight years. In 2004, the authors undertook Project Mindstorms (Chiou, 2004). The project focus on providing a rich environment using educational robotics as a delivery medium to enrich the teaching and learning of mathematics, science and technology to middle school and highschool students in the Central Queensland (Australia) region. One of the major activities of each of the environment presented to the participating students is a competitive arena. This was to become the Central Queensland Junior Robotics (2013) competition. One of the categories was the simplified version of the search and rescue challenge. In order for students to gain access to this challenge, workshops were provided to participating schools.

From the year 2004 to 2005, 117 students were part of Project Mindstorms. Upon completing high school, 13 later attended university at Central Queensland University (CQU). Of the 13, 4 became part of a 42 student group that was enrolled in either information technology or information systems degree courses. Both of these courses do not offer any courses on mechatronics. All 42 students subsequently undertook special courses or special projects using educational robotics with emphasis on robotics in a competitive arena in soccer robots and search and rescue challenges. This provided access to these specific students who have had no pre-requisite background. Of this, 8 subsequently enrolled in an advanced final year course with a major component in robotics as a competitive arena. 5 of these students were later joined by 3 students that were not part of the program. These 8 students were enrolled in either Honours or topics in advanced software project. The students at this level were involved in robotics in a competitive arena. Of this final group, 4 subsequently are enrolled in a research higher degree. From the above case study charted for the specific group of students with non-specialisation in mechatronics, it can be seen that the gamification provides a rich environment that allow students an accessible pathway to gain entry into an otherwise challenging area of study.

**Summary**

This position paper has introduced the concept of gamification, that is, the utilisation of game-mechanics and game-solving approach to solve problems and to engage audience. The nature of gaming becomes inherently the strongest motivational factor for students to undertake the learning activity in order to solve the given challenge.
in a problem space. The framework of commonplace learning activity is formalised and expanded to provide the groundwork for the application of gamification. Gamification is then adopted in a competitive arena. Competitive arenas are a well-defined problem space that provides well-structured problems to allow students to carry out test and multiple attempts at solving the given challenge. Three case studies were discussed to demonstrate the viability and successful application of gamification in the context of educational robotics. This includes urban search and rescue, soccer playing robots and problem based arena.

References

Abstract

Social media is being used by a significant number of students to promote and publish their work online, network with industry professionals, and arrange media placements and paid work. The objective of this study is to better understand how Media Studies students at Birmingham City University use social media to enhance their professional profile and employability. Through the use of questionnaires and focus groups, the significance social media plays in enhancing the students’ professional profiles is analysed. The research supports the idea that social media can be an important tool in developing the professional profile of a Media student, with almost a quarter of students finding placements or paid work through social media. The extent to which social media can develop the students’ social capital is also examined. The authors identify how social media platforms support the development of both ‘bridging’ and ‘bonding’ social capital (Putnam, 2000). The findings offer some reflections on how Web 2.0 tools are used by students and finds that students implement a range of strategies that in general, make distinctions between their emerging professional personas and their private lives. Marwick and Boyd’s (2011) notion of the ‘networked audience’, by which individuals communicate to an ‘imagined audience’ and ‘navigate multiplicity’ through their use of social media, is drawn upon to highlight the ways students use social media to best effect.

Introduction

Student use of online networking, through social media platforms such as Facebook and Twitter, seems to be both near-ubiquitous and increasingly sophisticated. Students feel as comfortable in connecting to tutors and potential employers as they do to each other. As media educators one can see first-hand the ways in which students not only ‘follow’ media professionals online but also begin a slow process of interaction with them, often based on finding some common social ground (a shared hobby or cultural interest) before progressing onto a more professional footing (perhaps a request for a placement opportunity). But beyond these occasional observations it is unclear, and under-researched, how widespread this practice is and which social media platforms students are using and for what purpose.

This paper presents research that sets about asking to what extent Media Studies students use social media to enhance their professional profile and effectively network with media professionals. The research was undertaken with students studying an undergraduate programme which is practice-focused and has dedicated ‘routes’ that align with established industry areas (such as ‘Radio’, ‘Television’, ‘Public Relations’). Postgraduates on similarly practice-focused programmes also participated. All programmes have an emphasis on employability with students either participating in dedicated employability curricula and undertaking placements (undergraduate programme) or offered space to shape their own employability programme in negotiation with tutors (postgraduate programmes).
Social Capital and Identity Creation

One paradigm we might consider in assessing the value of social networking is the extent to which the students’ social capital increases. Johnston and Percy-Smith (2003) note that there is little agreement on what social capital is, where it comes from, how it can be measured and, if it is a good thing, how we can get more of it. Yet, they argue (2003, p. 321), it remains an attractive but elusive concept. Bourdieu’s work was instrumental in defining social capital and gave primacy to economic capital, followed by cultural capital, with social capital a distant third (see Bourdieu 1986 and Baron et al. 2000, p. 4). James Coleman (1988) developed the paradigm by arguing that there was a causal link between social capital and access to resources, believing that social capital and human capital were often complementary. For him it became a way of understanding the relationship between educational achievement and social inequality (Baron et al, 2000, p. 5). Unlike Bourdieu, Coleman saw the creation of social capital as a largely unintentional process, which arises from activities intended for other purposes. (Baron et al, 2000, p 6). Putnam (2000) sees social capital as an asset of communities. He defines social capital as the “connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them”, (Putnam 2000, p. 19). Putnam believes that social networks have real value, “both for the people in those networks – hence, networking as a career strategy, for example – as well as for bystanders”, (Putnam 2003, p. 2). David Gauntlett (2011) in picking over the work of Putnam and others sees social capital as a useful concept for those seeking to better understand interaction on social media platforms where users are creating, sharing, and collaborating (see also Brogan 2009, Leadbeater 2008, Shirky 2008, 2010.).

Putnam distinguishes between two forms of social capital: bonding and bridging (2003, p. 2). Some networks link participants who are similar, and inward looking, creating bonding social capital. Others encompass heterogeneous individuals and are outward looking, creating bridging social capital. Putnam describes bonding social capital as “sociological super-glue” (2003, p. 2), whilst bridging social capital provides “sociological WD-40” (2003, p. 2). He asserts that bridging social capital is harder to create than bonding, but that it is vital for a “healthy public life”. (2003, p. 3). Drawing on Granovetter’s (1973) concept, Ellison et al. (2007) hypothesise that social networking sites could increase ‘weak ties’. In terms of their research into the use of Facebook amongst students they find that: “Facebook appears to play an important role in the process by which students form and maintain social capital” (2007, p. 20). They suspect that Facebook lowers the barriers to participation, encouraging students who might struggle to network elsewhere. They conclude: “our findings demonstrate a robust connection between Facebook usage and indicators of social capital, especially of the bridging type.” (Ellison et al. 2007, p. 22).

In exploring the ways in which identity is created on the Internet, many scholars have noted how user behaviour goes beyond simple communication or even self-expression and instead allows for a kind of performance to support self-promotion. Van Dijck (2013) notes that platforms such as Facebook and LinkedIn “cajole users into releasing information about themselves, both consciously and unconsciously” (van Dijck, 2013, p. 210). He draws on Goffman’s theory of ‘self-performance’ (Goffman, 1959) to describe how the giving away of ‘signs’ about oneself, intentional or not, is all part of an increasingly strategic use of “technologies of self” (van Dijck, 2013, p. 201). Sun (2012) explores the various ‘traits’ in Facebook users’ perceived ability to manage their online identity. These include traits such as a general awareness of oneself as a social object with the need to present one’s social connections to the world (Sun & Wu, 2012, p. 422) as well as the trait to trust in both the Internet as a ‘trustworthy’ institution and trust in one’s own digital literacy skills in order to manage their privacy on platforms like Facebook (Sun & Wu, 2012, p. 423). Sun finds that the need to belong is an important factor in managing Facebook self-presentation but is dependent on the extent to which you trust the Internet, and yourself, to manage and keep secure a digital version of yourself (Sun & Wu, 2012, p. 429).

Marwick and Boyd (2011) draw on the idea that writers ‘imagine’ particular audiences in their work. The process of shaping identity and writing status updates on social media is part of the process of constructing audiences:

*While Facebook or Twitter users don’t know exactly who comprises their audience addressed, they have a mental picture of who they’re writing or speaking to – the audience invoked. Much like writers, social media participants imagine an audience and tailor their online writing to match.* (Marwick & Boyd, 2011, p. 128)

For Marwick and Boyd the management of one’s online identity is akin to a form of ‘micro-celebrity’ (drawing on Senft, 2008) in which “individuals learn how to manage tensions between public and private, insider and outsider, and frontstage and backstage performances” (Marwick & Boyd, 2011, p. 130). The ‘backstage’ space
is explored and problematised by Hogan (2010, also drawing on Goffman 1959) who argues that although “some individuals draw open the stage’s curtain to let the world see their tastes” (Hogan, 2010, p. 380), it is too simplistic to argue that this is therefore a glimpse into private lives. He claims that: “musical tastes are not a backstage but rather a front” (Hogan, 2010, p. 380). To an extent Sherry Turkle (2011) agrees. Her discussion of “presentation anxiety” (Turkle, 2011, p. 184) amongst US college students using Facebook, notes that the self-presentation issues that all young people go through are now played out online, with the result that your ‘likes’ and interests are tortuously thought through in order to share others’ perception of you (Turkle, 2011, p. 184). Although much primary research indicated here is with young people of student age Livingstone (2008) notes some distinctions in presentational practices between younger and older teenagers. The latter group, she claims, express “a notion of identity lived through authentic relationships with others” (Livingstone, 2008, p. 407).

Lewis and West (2009) are also interested in the behaviours of young people on social media, in particular the process of ‘friending’ and the ways in which it may facilitate the development of online social capital. Their study of undergraduate students in a UK university found that Facebook “enabled broad, low pressure and low commitment communication with acquaintances” (Lewis & West, 2009, p. 1223). Although it seemed to facilitate the ‘weak ties’ that Granovetter (1973) speaks of, the researchers found the platform did little to building ‘bridges’ between different friendship groups (Lewis & West, 2009, p. 1223). Williams (2006) notes the problems in attempting to apply Granovetter and Putnam’s concepts to online interactions and that studies too often “have been stymied by importing measurements from older, functionally different media” (Williams, 2006, p. 610). Williams’ approach is to develop a ‘scale’ to measure both ‘bridging’ and ‘bonding’ social capital in online and offline contexts. His approach finds that the ease of entry to Internet use is key to its ability to facilitate ‘bridging’ social capital (Williams, 2006, p. 611). Valenzuela et al. (2009) find links between active online participation and a growth in the social capital ‘stock’ of young people (again, college students). Although small, there is correlation between those using Facebook and Facebook groups in an active way and their “life satisfaction, social trust, and civic and political participation” (Valenzuela et al., 2009, p. 893). The ways in which Facebook invites online participation seem key: “certain specific features of Facebook enable users to engage in behaviours that contribute to their social capital” (Valenzuela et al., 2009, p. 893).

Our research presents an opportunity to explore the ways in which students articulate their use of social media both in terms of self-presentation and the raising of their social capital. Bechmann and Lomborg’s work (2012) on value creation in social media reminds us that there are two perspectives we can take in examining user actions on social media. In an ‘industry-centric’ approach, users create value not just for themselves but for the owners of social media platforms, usually multi-national capitalist corporations: “the active user is a ‘tool’ for the companies to exploit in economic value creation” (Bechmann & Lomborg, 2012, p. 9). As teachers and scholars we’re mindful on the ways in which platforms such as Facebook do indeed ‘serve up’ our students as unpaid labour for Facebook’s shareholders. However, in this research, in order to address the specific issues of identify and social capital, we seek to take a ‘user-centric’ approach in which the user “remains an agent in control, mastering social media for information, social relationships and self-expression in everyday life” (Bechmann & Lomborg, 2012, p. 7).

Research Methodology

Our research combines quantitative and qualitative methodologies, utilising the former to inform a series of focus groups with students. We developed a survey that would help identify specific issues and trends that would drive discussions in the focus groups. Educational researchers Desimone and Carlson Le Floch (2004) identify the reverse approach in combining quantitative and qualitative methods but here we felt that the focus groups, informed as they would be by some knowledge of which platforms students were using, would produce the ‘thick description’ (Denizen 1989) we were seeking in order to produce useful findings. The survey would also serve to give a general view on patterns of use on social media platforms. Rather than selecting a representative sample of students we sought to include as many of the current undergraduate and postgraduate media students population at Birmingham City University’s School of Media as possible.

In order to explore further how the students were using social media in a strategic fashion we held four focus groups, with 4-5 students per group. Each group represented different levels of study and, based upon their responses to the questionnaire, different levels of engagement with social media. One group had a mix of final year undergraduates and Masters students. These students were active users of social media, although representing a breadth of experience. The second focus group consisted of second year students, all active social media users, whilst the third comprised a mixed first year group. The final focus group was of second year students who predominantly had not used social media to support their employability and therefore had a
different perspective. The focus groups took place in spring 2011 and were conducted by the authors. In devising the focus group questions we have tried to formulate open questions that spark debate and a comparison of experiences. In having a degree of triangulation from mixed methods of research we sought to strengthen the validity of the research.

**Findings**

**Results from questionnaire**

The quantitative findings go some way to identify the online platforms that students use and the extent to which they use such platforms as networking or promotional tools to aid their career development. Ultimately we received responses from 312 students out of a possible population of 450 which has a confidence level of 95% at +/- 3.3%. Of the responders, 68.5% were female, 31.5% male, which closely equates to the gender split of Media students at Birmingham City University.

All years of study were represented. Year 1 undergraduates are proportionately over-represented, however the survey was not intended to be to quota and therefore the data is not weighted as in the main, we compare percentages by year group. Table 1 indicates the breakdown of responses:

<table>
<thead>
<tr>
<th>Year</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Year 1</td>
<td>41.7</td>
</tr>
<tr>
<td>Undergraduate Year 2</td>
<td>24.7</td>
</tr>
<tr>
<td>Undergraduate Year 3</td>
<td>24.0</td>
</tr>
<tr>
<td>Post graduate</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Table 1: breakdown of respondents to survey

Across all years Facebook was the most popular platform with 95% of respondents using it at least daily, with first years using Facebook proportionately more than other undergraduate years. The second most popular platform was YouTube, with 59% of respondents using it daily, or more often. YouTube use is consistent across year groups although this relatively high figure might suggest students are consuming entertainment online, rather than creating. Twitter was the third most popular platform, but fewer first years were actively using Twitter than other year groups. Student use of LinkedIn increases the further through the course they are, with 94% of first years not using it at all compared to 45% of postgraduates who did not use it. Some students were also using specialist social media sites for storage, such as Flickr (photo-sharing), Sound Cloud (audio-sharing), Vimeo (video-sharing), but use tended to be weekly or monthly rather than daily.

The motivation for choice of platforms (Table 2) was clear from the questionnaires. 96% of respondents used networks their friends did, whilst 50% used sites recommended by the University, and 44% used sites they had read about. When asked whether they used sites recommended by industry contacts, 25% of first years replied positively, compared to over 40% of all other years. Virtually all respondents used social media to keep in touch with friends but there was a marked difference between year groups about how students used it strategically. Only 46% of first years said they were using it to develop their professional profile, compared to 63% of third years and 70% of Masters students. The percentage using social media to find jobs or placements is relatively consistent, with little difference between years. Where we see disparity is in professional networking; only 27% of first years said they engage in this, compared to almost 55% of third years.
Table 2: Reasons for use of social media

<table>
<thead>
<tr>
<th>Reason</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Masters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeping in touch with friends</td>
<td>85%</td>
<td>80%</td>
<td>75%</td>
<td>85%</td>
</tr>
<tr>
<td>Developing professional profile</td>
<td>65%</td>
<td>55%</td>
<td>45%</td>
<td>60%</td>
</tr>
<tr>
<td>LinkedIning job opportunities</td>
<td>45%</td>
<td>40%</td>
<td>35%</td>
<td>50%</td>
</tr>
<tr>
<td>Networking professionally</td>
<td>35%</td>
<td>30%</td>
<td>25%</td>
<td>35%</td>
</tr>
<tr>
<td>Keeping up to date with industry</td>
<td>75%</td>
<td>70%</td>
<td>65%</td>
<td>75%</td>
</tr>
<tr>
<td>Staying up to date with trends</td>
<td>65%</td>
<td>60%</td>
<td>55%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Most respondents (46%) felt Twitter was a platform useful for networking professionally, with 16% recommending LinkedIn and 9% Facebook. We were keen to identify levels of sophistication of use of social media platforms. When asked if they interconnect their profiles and updates across platforms, 41% of first years said they did, increasing to 57% of third years, and 76% of Masters students. Students seem to find it hard to connect with industry professionals through social media but improve the further through their degree they are. Only 39% of first years found it easy to connect with industry professionals, compared to 53% of second years, 65% of third years, and 76% of Masters students.

Undergraduates in the School of Media must complete work placements as part of their course work and we were interested in what methods students used to arrange these. From the results of the questionnaires almost a quarter of students said they had used social media to find placements or work. Of these, 69% had also found them through other methods (e.g. email or phone calls), with the remainder solely sourcing placements through social media. This implies that most students are employing multiple methods to secure placements. Finally, we wanted to explore whether students were managing to convert networking with industry professionals through social media into applying for placements by email or phone calls. The results to this question were fairly low, about a fifth said they had, and this was fairly consistent across years. This relatively low percentage suggests students are not capitalising on their contacts as effectively as possible.

Results from focus groups

The focus groups produced detail and depth about the students’ personal experiences of social media and a number of themes and issues became evident through analysis of the focus group transcripts. Many focus group participants expressed a preference for separating their personal and professional profiles, usually, but not exclusively, keeping Facebook for personal socializing, whilst employing Twitter and blogs for more professional interaction. However, it was noted that several students had established separate Facebook pages for micro-business use. Through this they created a business network of ‘friends’, posting up examples of their video or photographic work, and in return, received small-scale commissions for similar projects. One student was carrying out this kind of activity from his personal Facebook account, but was aware of a tension between personal and professional activity:

“I’ve had just quite casual business, so it’s been okay, but I wouldn’t want like quite big companies to know me as a person, but as a professional, and that’s why I’ve realized now that I’m getting a bit more popularity, that I want an actual website, that’s professional. (Focus Group Participant A)

Although the students tended to perceive Facebook as a social rather than professional space it seemed to provide a cost-effective and convenient platform on which to launch their micro-businesses, allowing students the opportunity to experiment in establishing their business personas in a relatively risk-free environment, both financially and personally. This demonstrates a pragmatic utilization of the site, as implied in the comment above. However, the focus group participants were uncomfortable when professionals impinged on their personal world. One television student describes receiving an offer of work via a Facebook inbox message, from someone who was not a ‘friend’:
she was a producer at MTV and she just started talking to me about something I could have worked on, and she had my email, but she chose to go on FB to message me, which was weird. (Focus Group Participant B)

The students seemed to impose unwritten etiquette about the rules of engagement on social media sites and questioned the professionalism of industry workers if they did not abide by them. A postgraduate student in the focus groups explained the context, as she understood it:

I think on Facebook there is very much a social etiquette, like I was always told from opening my account and starting to make professional friends; that it’s ok to add them, and that it’s ok to talk to them if they are genuinely friends, but if there’s an opportunity for a placement or a job, that you do that formally through email or writing in to them, that you don’t send an in-box message and say, ‘Hi, do you remember me and can I have that placement’ or whatever, because that isn’t considered the done thing. (Focus Group Participant C)

Obviously, not all students are so circumspect and several focus group students mentioned unguarded, sometimes drunken posts on Facebook, that they later regretted. This was partially behind the rationale of separating their professional and personal profiles: they were still experimenting with the tensions between independence and responsibility. Some of the students did as the above quote suggests and added professional contacts whilst on work placements, who then became friends. This enabled continued contact, and enlarged their networks; it also paid dividends in generating further placements, usually instigated by the professional.

The students used Facebook as an extension of their offline activity but differentiated between the real and the virtual, often demonstrating a maturity of approach and the desire to build genuine, rather than opportunistic allegiances: “In both social media and real life, not that social media isn’t real life, but you know what I mean, it’s all about making conversation, it’s not about saying, I do this, can I have a placement please” (Focus Group Participant D). The students showed an awareness of the differences between their professional and personal profiles, understanding that they were constructing an identity, a version of themselves, presenting an almost entirely positive image. As one student put it: “everything in social media you select, I mean even the pictures you’re going to show you’ve selected and edited” (Focus Group Participant E). They were conscious of appealing to an imagined audience (Marwick & Boyd, 2011, p. 124) and of being judged by their profile and the photographs on their pages:

You’ve got to be conscious of who’s going to be looking at it. If you’re creating a profile for yourself, you’re creating an online presence, and if you want professionals to see it, and think, yes, they’ll be good for a job, you’ve got to be conscious of what you’re putting on there, of what they’re actually going to read. If you’re on Facebook and you’ve got pictures of you going out and getting wasted, then they’re going to think, oh well, they’re doing that all the time. (Focus Group Participant F).

The majority of students in the focus groups described checking Facebook first thing in the morning and often the last thing at night; habitual and recurrent usage that corresponds with the findings of other studies (Ellison, Steinfield, & Lampe, 2007; Grosseck, Bran, & Tiru, 2011). Alongside this desire to interact socially, they also used Facebook as an academic networking tool. In group work projects, they described creating private Facebook groups, finding them more useful as a communication tool than email for ensuring everyone knew the logistics of a project and for sharing documents. Because they knew that each team member checks Facebook regularly, they were reassured that everything would have been seen by everyone. Some students also used it creatively for revision workshop sessions, with someone in the group posing a question and others seeing if they could answer it. These applications demonstrate the flexibility of social networking tools in both academic and project work but also reveal how students find inventive uses for the platforms without necessarily needing an institutional helping-hand. As Roblyer et al. (2010) note “Students seem much more open to the idea of using Facebook instructionally than do faculty” (Roblyer et al., 2010, p. 138).

Conclusion

Social media seems to be a significant tool in developing students’ professional profiles. In terms of the significance of the students’ professional use of social media, we know from the quantitative data that most students have examples of work online and an active professional profile. We also know that 24% of students found work experience through social media but the majority find it hard to connect with industry professionals and to convert contacts into work experience. From these findings we might argue that the strategic use of social
media increases as students progress through their degree with first years extremely active on Facebook and YouTube, but less so on platforms perceived as more professional.

The findings from our focus groups enable us to see how to some extent the students’ use of social media in a professional context works to enhance their social capital. Social media can be seen as adding to the students’ stock of both bonding and bridging social capital. In some ways Twitter seemed to be useful in promoting a form of bridging social capital, more so perhaps than Facebook, because of the facility to ‘follow’ a contact without always needing to be approved by them. Facebook, with its closer and reciprocal ‘friends’ links, generally seems to develop bonding social capital, although there is some evidence of building bridging social capital, especially in the example of students who established micro business pages. Twitter’s more disparate and not necessarily reciprocated contacts seems to offer the opportunity to build both bridging and bonding social capital.

Overall, our research suggests that as they progress through their studies, students become more confident users of social media platforms and use them in more sophisticated ways. Yet both the quantitative and qualitative research identified lack of confidence as a key issue, with some students finding it difficult to connect directly with industry professionals online. The key with building up a professional relationship seems to be through conversation rather than through direct approaches, but that in itself presents difficulties for students about how to initiate conversation.

Although further research into the online behaviours would offer more insight, it is perhaps timely for educators to turn their attention to developing teaching materials that could better utilise the real-world experiences of students, perhaps also more including the perspective of industry professionals about how they might like to be approached. Students understand the unwritten rules and norms that exist around online interaction and curriculum designers might seek to expose these rules for the wider benefit of the student cohort. The utilisation of such materials could then be the subject of further valuable research.

References


Abstract

Learning in the 21st Century requires students, teachers and lecturers alike, to apply Higher Order Thinking Skills (HOTS) in their teaching and learning activities. It is arguably the key to generate critical and creative minds among students, which in turn, leads to infusion of ‘innovation culture’. In Malaysia, the significance of HOTS is underlined in the Educational Development Plan 2013-2025, (Malaysia Ministry of Education, 2012) as part of the educational transformation programme. Higher order thinking occurs when a person takes new information, stores in memory, and interrelates and/or rearranges and extends this information to achieve a purpose or find possible answers in perplexing situations. HOTS serve a variety of purposes: deciding what to believe; deciding what to do; creating a new idea, a new object, an artistic expression; making predictions; and solving non-routine problems (Lewis and Smith, 1993). Information is retrieved in different forms of elements such as texts, graphics, still pictures, audio & video as well as animations, and produced in the form of learning objects in relation to e-learning. Thus, the mediated teaching and learning process which involves application of ICT as a tool is fully encouraged. In effect, steps have been taken to provide infrastructure necessary for accessibility of information. This paper intends to formulate strategies for students to explore and exploit the information in the elements of multimedia using the principles of HOTS. The strategies devised are based on literature which accentuates the importance of pedagogy in the teaching and learning process. Mishra, P., & Koehler, M.J., 2006 attest that teachers need to have extensive pedagogical knowledge so they can accommodate and integrate ICT effectively in their teaching. In short, education today needs teachers to develop and design their instructional planning grounded on three major areas; technology, pedagogy and content knowledge (TPACK). Taking this a step further, Anderson J, (2010) states that there are four stages in the integration of media in the classroom namely; emerging, applying, infusing and transforming. These four stages explain the status of teachers and students use of media in the process of information seeking. In fact, the creating element is placed highest in the revised Bloom’s Educational Taxonomy, 1990 which further consolidates the view that students should be exposed to the skills of creating ideas. The strategies constructed here, are in the form of worksheet known as Media Integration Analysis Worksheet (MIAW), comprising 6 procedural aspects. They are (i) types of media chosen, (ii) elements to be used, (iii) selected components of the element, (iv) skills which include HOTS, thinking tools, current issues in relation to moral values (v) Instructional tools which include methods, techniques and activities; and (vi) Instructional questions. This study is significant as the worksheet guides teachers, lecturers and students to retrieve, analyze and use information in the different multimedia elements critically and creatively - in their teaching and learning activities. Workshops have been conducted for teachers to develop in-depth understanding of MIAW. In this regard, questionnaires are administered on them to gauge its effectiveness. The format of a typical five-level Likert scale is constructed to look at the teachers’ view on the effectiveness of MIAW.
Introduction

Instructional media which is defined as a means by which information can be delivered to a learner (Heinich & Molenda, 1993) has widely been used by the educators in their teaching and learning process. It ranges from projected material to non-projected material as well as new electronic media such as television video tapes & audio equipment referred to as audio visual aids (AVA) in the early years. In the current situation the application of ICT transform data from analog to digital which starts from using software for composing texts, desktop publishing, audio and video creating and editing, computer-aided design, authoring and programming, and to a wide use of online learning. However it has the common aims, to enhance learning by selecting the most appropriate media in their various categories according to the experience of the children as pointed out by Edger Dale’s Cone of Experience, 1961. In the era of 21st learning, within the context of core knowledge instruction, students must also learn the essential skills for success in today’s world, such as critical thinking, problem solving, communication and collaboration. This aspect has been emphasized in the Malaysia Educational Development Plan 2013-2025, (Malaysia, Ministry of Education, 2012) as part of the educational transformation programme whereby, teachers need to apply Higher Order Thinking Skills (HOTS) in their teaching and learning activities. It is arguably the key to generate critical and creative minds among students, which in turn, leads to infusion of ‘innovation culture’. Thus, teachers are faced with another challenge whereby they need to strategize their teaching to integrate the element of creativity besides adopting a technology and media-driven environment in their teaching and learning process. This is marked by access to an abundance of information, rapid changes in technology tools and the ability to collaborate and make individual contributions on an unprecedented scale.

Literature Review

The strategies devised are based on literature which accentuates the importance of pedagogy in the teaching and learning process. Mishra, P., & Koehler, M.J., 2006 attest that teachers need to have extensive pedagogical knowledge in order that they can accommodate and integrate ICT effectively in their teaching. In short, education today needs teachers to develop and design their instructional planning grounded on three major areas; technology, pedagogy and content knowledge (TPACK).

![Figure 1: The components of the TPACK framework (graphic from http://tpack.org).](image)

Anderson J, (2010) pointed out the four stages in the integration of media in the classroom namely emerging, applying, infusing and transforming. These four stages further explained the status of media used by teachers in the classroom. The four stages explain clearly the teaching styles of teachers when delivering the lesson. In emerging and applying stages the styles of teaching is more teacher-centered. However, this approach seems not relevant in the present era. The transforming stage involve critical thinking and informed decision making.
whole-learner learning, multi-sensory, preferred learning styles, collaborative learning, and collaborative knowledge which is more student centered and seen as one of the features in the 21st century teaching and learning skills.

<table>
<thead>
<tr>
<th>Emerging</th>
<th>Applying</th>
<th>Infusing</th>
<th>Transforming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher centered Didactic-style teaching</td>
<td>Factual knowledge-based learning Teacher centered Didactic-style teaching E-learning a separate subject</td>
<td>Learner-centered Collaborative learning</td>
<td>Critical thinking and informed decision making Whole-learner learning, multisensory, preferred learning styles Collaborative learning Collaborative knowledge</td>
</tr>
</tbody>
</table>

Table 1: Matrix of ICT performance indicators for determining progress in ICT integration (Adapted from Anderson and van Weert, 2002)

The principles of HOTS are already practiced by teachers in their daily lessons. However with the introduction of new education transformation programme in Malaysia, the importance of HOTS in the school syllabus is emphasized. The Revised Bloom’s Taxonomy has placed the aspect of “creating” at the highest level in the taxonomy of learning objectives. It is a framework for classifying statements of what we expect or intend students to learn as a result of instruction.

![Bloom's taxonomy revised](http://www.nwlink.com/~donclark/hrd/bloom.html)

This learning taxonomy explain the importance of generating critical and creative minds in the process of learning in relation to the concept of HOTS.

**Methodology**

This presentation intends to deliver the formulated strategies known as Media Integration Analysis Worksheet (MIAW) to help teachers in their instructional planning as well as for students to explore and exploit the information in technological-based learning using the principles of HOTS to generate critical and creative minds.

MIAW comprises 6 procedural aspects namely, (i) types of media chosen, (ii) elements to be used, (iii) selected components of the element, (iv) skills and student profiles which includes thinking skills, multiple intelligences profiles, learning styles, moral values and other 21st learning skills (v) Instructional tools which include the methods, techniques and activities; and (vi) Instructional questions – instructions/questions/guides. This study is significant as the worksheet guides teachers, lecturers and students to retrieve, analyze and use information in the different multimedia elements critically and creatively - in their teaching and learning activities. It fulfills the 21st century learning needs and meets the requirement particularly in the new educational transformation programme in Malaysia.
### Table 2: Media Integration Analysis Worksheet (MIAW)

<table>
<thead>
<tr>
<th>Types of Media</th>
<th>Media Elements</th>
<th>Components</th>
<th>Learning Skills/Students profiles</th>
<th>Teaching Tools (methods, techniques, activities)</th>
<th>Instructional Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic: Still photo (from Powerpoint slide show)</td>
<td>Elements chosen: Graphic</td>
<td>Components chosen (example: Graphic – Object/main object – building/seas Background (mountain ranges) Emotion: feeling towards surrounding)</td>
<td>Thinking tools • cause &amp; effect/ CAF, - from de Bono’s work) Multiple intelligences profile • Naturalistic /musical intelligence etc. 21st learning skill: global awareness – healthy leaving/environmental awareness • Moral values - cleanliness</td>
<td>Cooperative learning/ Constructivism/ exploration etc.</td>
<td>• What are the buildings along the beaches for? Why do you say so? • How is the weather? What are the evidences that support your answers? • What are the people doing along the beaches? • Where are they from? • How did they come to the place?. • What other facilities are found in this place to cater for the people’s needs? • How would you feel if you were at the beach?. • (more questions should be constructed in order to generate the critical and creative minds of students)</td>
</tr>
</tbody>
</table>

### Table 3: Example of Media Integration Analysis Worksheet (MIAW)

Workshops have been conducted for teachers to develop in-depth understanding of MIAW. In this regard, questionnaires are administered on them to gauge its effectiveness. The format of a typical five-level Likert scale is constructed to look at the teachers’ view on the effectiveness of MIAW. The indication of the
effectiveness is represented by the percentage of respondents’ frequencies marked in each item. 105 participants responded to the five-level Likert scale.

Result and discussion

Table 4 shows the respondents’ views on the workshop conducted to look at the effectiveness of MIAW in their preparation of the classroom lessons. The results of the analysis are in the form of frequencies and percentages of total respondents towards all the 5 items listed.

<table>
<thead>
<tr>
<th>Items</th>
<th>Frequencies/percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------</td>
<td>-------</td>
</tr>
<tr>
<td>1. Clarity</td>
<td>62 59.00</td>
<td>41</td>
</tr>
<tr>
<td>2. Relevancy</td>
<td>71 67.62</td>
<td>33</td>
</tr>
<tr>
<td>3. Usefulness</td>
<td>76 72.38</td>
<td>29</td>
</tr>
<tr>
<td>4. Fulfil teachers’ Need</td>
<td>70 66.67</td>
<td>32</td>
</tr>
<tr>
<td>5. Improvement knowledge &amp; skills</td>
<td>66 62.86</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 4: Analysis of the effectiveness of MIAW

By looking at the Table 4, the scores clearly show that all items are above 50% on the strongly agree column (clarity – 59%, Relevancy - 67.62%, Usefulness – 72.38%, fulfill teachers’ need – 66.67%, and Improvement of knowledge & skills – 62.86%).

The indications are that teachers need MIAW as a form of guidance in formulating strategies to generate higher order thinking skills (HOTS) in a mediated teaching and learning process. Many writers have also suggested that developments in ICT provide very different learning opportunities, and a need to design a new ‘integrated pedagogy’ has also been identified (Cornu, 1995). For example, McLoughlin and Oliver (1999) define pedagogical roles for teachers in a technology-supported classroom as including setting joint tasks, rotating roles, promoting student self management, supporting meta-cognition, fostering multiple perspectives and scaffolding learning.

Further research will be conducted to gauge the response of the students towards MIAW in their learning activities.

REFERENCE


Exploring Students’ Perception on The Use Of Social Networking In Higher Education

Teo Siew Hway  
Universiti Kuala Lumpur MICET, Malaysia  
shteo@micet.unikl.edu.my  

Noorhayati Saharuddin  
Universiti Kuala Lumpur MICET, Malaysia  
noorhayati.saharuddi@micet.unikl.edu.my

Abstract

The purpose of this paper is to describe why students use social networking sites (SNSs), particularly Facebook, and report students’ perceptions on using SNSs for the purpose of learning, either formal or informal learning. This study employs an exploratory qualitative method; and four engineering female students, at Diploma level, were selected as subjects for this research. The findings of the research have classified five themes: usage purpose, information sharing and seeking, self-expression, belongingness-oriented behaviour, and educational tools. It has been determined that the main reason for university students to use Facebook for their daily lives were primarily associated with socialization reasons, especially to maintain existing relationship. However, this interaction has very little to do with educational purposes. Therefore, this research reached an opposite conclusion with existing favourable claims or suggestions that using Facebook helps engage students in their learning.

Keywords : Social Networking Sites, higher education

Introduction

Social networking is becoming popular among young generation in Malaysia since late, especially university students, those between the age of 18 to 24 are keen to use social networking in their social interaction. Taking into consideration that the largest virtual community – Facebook, has become one of the main communication mediums university students utilize to keep in contact with friends and acquaintances; it also becomes an appealing medium for formal and informal learning.

Emerging research literature suggests that SNSs are becoming a ubiquitous aspect of youth and young adult life. Researchers have learned that teens and young adults use SNS primarily for social purposes, as opposed to academic or working purposes. As such, this study aims to examine the perceptions of social networking for formal and informal learning among Malaysian private university students, hoping to identify the affordance and use of SNSs for learning purpose.

Research Questions

This project addresses two research questions:

1. Why private university students use online social network, particularly Facebook?
2. What are the perceptions of private university students on using Facebook as a learning tool?

Literature Review

According to Boyd & Ellison (2007), social network sites (SNSs) as online services that enable people to connect and express themselves to one another within their own social community; and after joining a social network site, users are requested to find other users of the system with whom they have a relationship. It
describes how users establish the connections with one another, not only “stranger”, but also those already known friends.

There are four different categories of contacts in Facebook: friends, friends of friends, non-friend users of the same network (e.g., at the same institution), and non-friend users at a different network. By default, every individual on Facebook appears in the searches of everyone else, independent of institution affiliation (Gross & Acquisti, 2005).

Cheung, Chiu and Lee (2011), based on their study on Hong Kong’s students, tended to witness that the use of online social networks among university students functions as an intentional social action. This study also examined the relative impact of social influence, social presence, and the five key values from the uses and gratification paradigm on We-Intention to use online social network. The results reveal that among the five values, social presence (maintaining interconnectivity and social enhancement) is the most significant determinant on We-Intention to use Facebook (Cheung, et al, 2011). In other words, the main reason users join SNSs is for communication and maintaining relationships with their friends. Via online SNSs, everyone can have a platform to share their personal stories, in words, pictures, and videos with their friends, or even “strangers”. Interestingly, some researchers found that students significantly expose information on their genuine identity on Facebook because they are afraid that invalid information would be questioned by their known friends (Hew, 2011).

Through a research using online survey on first year campus-based undergraduate students in a British University (n=213) to explore how they used Facebook for social integration into university life and for academic purposes, Madge et al.(2008) suggested that Facebook’s potential as educational tool is significant. However, the researchers recommended “caution about moving into a social networking space that students clearly feel is “theirs” for social rather than academic purposes” (Madge et al, 2008:18). Hence in this study, students use Facebook mainly to help them micro manage their life as a student in university instead of using it for formal learning purpose.

Similarly, Kirschner and Karpinski (2010) compared the differences of academic performance among Facebook users and nonusers who were undergraduate and graduate students and discovered that FB users and nonusers were significantly different from each other. It is a common phenomenon in Midwestern University in which FB users reported having lower Grade Point Average (GPA) and spent lesser hours per week for studying compared to those nonusers.

While there was a negative relationship between the time spent on Facebook and grades, Junco(2012) claimed that it is crucial to look at the real-world implications of these findings in which there might be certain pattern of Facebook use that are related to lower academic performance. For instance, a student who spends hours on Facebook posting status updates and chatting on Facebook chat may be more at risk for lower GPA than a student who checks Facebook a few times a day and share links and checks up on friends.

Through a systematic qualitative study of the content of the Facebook pages of undergraduate students in a UK university, Selwyn (2009) identified that there were five main educated-related Facebook activities carried out by these student, i.e.: (1) recounting and reflecting on the university experience; (2) exchange of practical information; (3) exchange of academic information; (4) displays of supplication and/or disengagement; and (5) ‘banter’ (i.e., exchanges of humour and nonsense). She further added that students’ use of Facebook is central to the development or shaping of a student identity; for the informal, cultural learning of being a student in a higher education setting. Thus, Facebook simply does not seem to have a generalizable impact on grades.

In Malaysian context, Afendi, Mohamed Amin and Haslinda (2012) conducted an online survey to examine the potentials of Facebook in education among Malaysia university undergraduate and postgraduate students (n=6358). This study highlights the views of the students on using SNSs for the purpose of informal learning. The results show the students spend the most time online for social networking and learning. However, merely 50% of the students were willing to connect via Facebook with their lecturers in informal learning activities. In addition, the students claim they prefer spending more time on SNS for socializing than learning and they definitely do not agree that the use of SNS is affecting their academic performance. The study is greatly related to the present study as it examined the use of Facebook for Malaysian university students. Precisely, the previous study focused on large populations of students, whilst this study focused on engineering students in a private university.

**Research Methodology**
This study employs an exploratory qualitative method and the participants were 4 female students, all 18-19 years of age, who are frequent users of SNSs, has been a member of a SNS for at least two years in average, and currently studying in Diploma level of the Engineering Faculty, in University Kuala Lumpur, MICET.

In this study, the researcher was the primary instrument. In order to gain insight into research topic, a focus group interview was conducted to collect the views and thoughts of the participants and most importantly, to establish a brain storming using the group dynamics.

A set of open ended interview questions were determined beforehand by the researcher to get the vital information to answer the research questions. First, researcher interviewed students in order to determine the characteristics of their social network site use and their perceptions regarding the role of social network site in education. The interview lasted about 60 minutes included a pre-interview survey on demographic background and media use. Some of them did not really possess good English and therefore questions were kept being repeated to ensure students’ understanding. There were also a mix between Malay and English during the interview to ensure that the participant felt comfortable. The recording was recorded using a video-recorder to help identify speakers and to enable non-verbal interaction among participants to be drawn upon in the analysis.

The first step to analyse this focus group data was to have the entire interview transcribed. Once the transcript was finished, it served as the basis for further analysis. In this study, the scissor-and-sort technique was used for analyzing the transcript of focus group discussion. The researcher went through the transcript carefully and identified the sections that are relevant to the research questions. Based on careful reading and going through the transcript several times, a classification system for major topics and issues was developed, and material in the transcript related to each topic was identified. The findings of the research were classified into five themes: usage purpose, information sharing and seeking, self-expression, belongingness-oriented behaviour, and educational tools.

Findings & Discussions

Usage Purpose

When it comes to the Facebook usage purpose, there was general agreement among the students that most of them mainly use Facebook for maintaining contact with friends, reunite with old classmates or friends, meet people with same interest, sharing news about a person’s life or getting the latest news, latest photos, and so forth.

“Through Facebook, I can communicate through Facebook chats, wall posts, and even events. I have been able to sustain so many friendships by using Facebook.”

“…Facebook helps me to keep in touch with friends, classmates, even my primary school classmate that I would have never talked to them for so many years....”

Not surprisingly, most university students used Facebook to keep in touch with friends not at their university, for instance, friends from their secondary school, even primary school, or their home town. They wanted to share their university life with all these friends. Besides, some of the participants did agree that Facebook enable them to re-connect to those old friends or classmate they had forgotten and get in touch with people they knew. In addition, the focus group members also believed that Facebook enables the relationship with other friends to be closer than before. As one of the students said:

“...In my situation, it’s happened that some people, we don’t even greet each other before we met in Facebook. But after she became my friend in Facebook, our friendship become closer, until use the words, “sayang”, “dear” kind of things...”

Paradoxically, there was a comment that the relationship built through Facebook is just too superficial and no sincerity, or just simply a Facebook-only relationship. The students agreed that there was another type of “friends” in Facebook: friends within the Facebook only.

“...I have a friend who most of her friends in her Facebook Friends’ list are considered ‘strangers’, she just simply add and accept any friend request in Facebook. In reality, she is some kind of antisocial person, doesn’t like to talk to people or classmate as well...”
Regarding the degree of closeness of the students’ relationship, it also determined the type of communication channels chosen. Typically, they preferred using texting via mobile phone to communicate with their close friends, and also immediate family members. On the other hand, for the larger group or less intimate friends, the students still favor Facebook. As one of the students said:

“Texting is only for my family members, like sisters, brothers, and also some very close friends...Facebook is less personal...”

Furthermore, one of the students added that talking through phone was the only option when communicating with her parents:

“With my parents, because they do not know how to use Facebook or even text, I usually call them. With my friends, I either text or use Facebook...because it is easier and more convenient.”

Information Sharing And Seeking

There was unanimous agreement among the focus group members that when they update their status in Facebook, they hoped their Facebook friends have the same kind of feeling as them.

“...I always put up what I feel on a particular day on my status to gain some feedback from my Facebook friends...”

“Facebook is good when there is a festive season, for example, Hari Raya or New year, we will wish each other via Facebook wall. Sometimes it is quite shy for us to wish everyone personally.”

When they were asked what kinds of activities they usually do when they visit other peoples’ profiles, all of them said they would check and read other people’s status and subsequently click “like”. One of the reasons for this type of behavior may be because the students tend to maintain a good personality. Besides that, the focus group members stated that they usually set the security setting in Facebook because they didn’t allow everyone to access to all their particulars.

“...I have just add the school name and date of birth for my profile...”

“Frankly, I don’t like to give every information on my profile page. And some more, I also used to set most of the photos/albums can be viewed by my friends. Not for everyone...”

Regarding the topic of privacy, the rest of the participants simultaneously nodded their heads to show support to the points one of the member had highlighted. The students were generally aware of the risks of putting sensitive information on Facebook and they tended to choose texting over Facebook use when dealing with sensitive information.

Tagging is an application where the users match the photo or names of the people in the photos or comments to ensure the photo or comment is included in the profile of the tagged person. In this study, participants said that this application was sometime problematic identity and privacy issues that Facebook users face. However, one of the students mentioned that she did not bother restricting her profile visibility.

“...I don’t mind people tag me on Facebook, through photos or comments...Usually I just go through the tagged photos or comments, and sometimes I will response to the photos or comments. Sometimes, it is fun to look at the tagged photo, especially those old photos...It will bring back some of my old memories...”

Overall, most students did not encounter negative effects from Facebook use or any inappropriate behaviour.

Self-Expression

Facebook can be considered as a new and ideal platform for young adults to express themselves. Usually wall posts were a preferred way of interacting with friends and the groups that the students had joined. Regarding self-expression, the students stated that sometimes they voiced their feelings or opinions via Facebook wall to encourage consensus with those interested to their topics.

“...sometimes we write things about the problems we face to complete our course works, or any difficulties we face in our study and hoping someone can assist us...”
“...if there is someone or sometime happened to me and make me get angry. I just write on the wall and share with others...”

However, one of the participants did not agree to using Facebook for self-expression.

“...It is more difficult to write in Facebook...this is what I do anyway. I don’t like it post on Facebook and I prefer to use texting features in mobile phone...”

This implied that individuals’ Facebook-only relationships may stay within Facebook only and do not mix with the students’ offline relationship. In other words, students are likely to have two distinguish social relationship domains: Facebook-only and real-world relationship in maintaining their friendships with others.

**Belongingness-Oriented Behaviour**

There was equally positive agreement that students use Facebook for the feeling of belonging to a group. As there were a number of courses offered, some of the students wanted to distinguish themselves from the other courses. They preferred only their ‘group’ (those of the same specialization) to respond to their postings. On top of that, the students reflected that their posts on Facebook indicated that they were part of the same academic community group, meaning Diploma student.

“We joined 2 groups which are mostly or some sort like compulsory joined by our classmates or coursemates, namely UniKL Micet BatCh 1994 and MSR Micetian July 2012. From here, we can find a lot of updates from our community...the first thing we log on Facebook is to check any updates for these groups' profile.”

Obviously, the students became a member to social network sites simply in relation of their own interest or hobbies, or indicating their primary school, secondary school, their opinions on current topics, and so forth. They became a member to these groups to benefit from sharing and obtaining information about the activities in their community and also hoped not to be isolated from the community groups. In fact, groups’ involvement will also indicate students’ identity.

**Educational Tools**

When considering the use of Facebook as an educational tool, one of the students strongly felt uncomfortable and said:

“Facebook is merely for social...Elearn (Learning Management tool for Unikl students) is specific for learning...”

This implied that “Facebook is not for education” and this student definitely did not support using Facebook as an Elearn. In contrast, another student pointed out:

“If Facebook is used as educational tool, we can inform our friends or classmates about course matters or assignments directly through Facebook instead of using SMS or phone call. It will save our money....”

One of the students, as well confers, in a similar opinion, that Elearn is more suitable to download notes only. It was easier and faster to ‘talk’ to people whom they saw daily on Facebook than to look for them in class, if she needed to communicate something important to them. To support this, another student pointed out:

“Some of the students so far never logon to Elearn, they don’t open and use notes in Elearn. But, they use Facebook everyday...and ask about the course work through Facebook.”

On the other hand, another student reminded and said:

“I have a friend, she never logon her Facebook account. She just opened the account because we asked her to create. After that, she never used that account. According to her, she doesn’t like to expose her personal particular or feelings to everyone.”

Clearly, when asking on the context of using Facebook as learning tool, all of them answered differently; but as a conclusion, they did agree that Facebook is capable to be used in informal learning, additional source for the students to get course information. The students suggested that the lecturers create a Facebook group based on
particular academic subject in order to get spontaneous response and also to view other students’ comments about the elements of the subject. Hence, from there the interaction will be easier and simpler.

Nevertheless, when they were asked on integrating the academic conversation into their social spaces, all of them agreed that such phenomenon will lead to a better relationship among classmates. Students will tend to build a better relationship via Facebook by distributing course documents such as assignments or course notes. Indirectly, in some ways, as a sharing avenue, Facebook can be used as an appropriate platform to foster a meaningful student-lecturer interaction, as students felt lecturers are more approachable while interact online.

“Sometimes we felt some of the lecturers are quite strict, but after interact with them through Facebook, and we discovered their real personality through their Facebook’s profile. Our perceptions to these lecturers have changed. We could become friends while interact online.”

Conclusions

This study focused on why university students use Facebook and explore their perceptions on using Facebook in educational purpose. It has been determined that the main reason university students use Facebook in their daily lives were primarily associated with socialization reasons, especially to maintain existing relationship. However, this interaction had very little to do with educational purposes. Therefore, this research reached an opposite conclusion with the existing favourable claims or suggestions that using Facebook helps engage students in their learning.

A majority of students expressed that Facebook is not an ideal learning environment on its own. However, by informally engaging in social interaction with Facebook friends, the students in this study stated that it is feasible to use it as an alternative to enhance students’ learning experiences. It provides a social environment where a group of students are able to share information, discuss ideas and hence establish knowledge in an effective and interactive way.

Besides that, this study also yielded an interesting qualitative result. The majority of students reported that Facebook did not impact their academic performance directly. This is because for them, they did not use Facebook frequently enough for such an effect to occur. They also emphasized that academics were still a priority for them as university students.

Future research on Facebook should examine educators’ role in enhancing the students’ learning experiences using this challenging technology. Apart from using Facebook as a socialization avenue, educators must be aware of how to integrate this site in academic context (Junco et al., 2011), whereby the educators can post assignments and tasks related to the course on Facebook whilst creating a meaningful interactive learning environment.

Also, the inter-relation among Facebook use, student involvement, and academic achievement is required for further exploration. Most of the researches conducted concerning academic achievement were quite superficial by using statistical figures. In fact, it is crucial for future research to evaluate qualitatively how Facebook influences students’ engagement and subsequently the students’ engagement impact to academic performance (Junco, 2012). By identifying and exploring the relationship among these relationships, it will bring beneficial academic experiences for educators and students as well.

References


Abstract

This paper explores two pedagogic landscapes – vocational education and e-learning. The aim of this research is to evaluate the use of experiential learning within vocational education programmes delivered via e-learning methods. In order to achieve this aim three research objectives have been constructed. The first objective is to appraise the role of experiential learning in the learning cycle and identify factors that may accelerate or diminish the effectiveness of experiential learning activities. Secondly, this paper will evaluate the nature of vocational learners in terms of their suitability for e-learning study. Finally the paper will propose a vocational e-learning cycle to evaluate experiential learning activities. A content analysis of an existing e-learning programme consisting of 126 learning objects took place based on a coded framework of 15 aspects of experiential learning. Findings indicated that ‘prior’ and ‘concrete’ experience is extremely beneficial for vocational e-learners as this allows for reflection and facilitates a deeper approach to learning, although substitutes for previous experience include conceptualisation, problem-based learning and the use of peer groups. It is suggested that vocational e-learning is at its most effective when thought of as a half of a dual approach which includes learning acquired at the student’s place of work.

Keywords: E-learning, Vocational Education, Experiential Learning, Learning Cycle

Introduction

Ho et al (2009, p.55) state that “the rapid advancement of Internet and computer technology has not only influenced the way we live, but the way we learn”. This is furthered by Haythornthwaite and Andrews (2011, p.207), who discuss e-learning as a “multi-faceted phenomenon” that revolutionises the “long-standing relationship of authority and knowledge”. However at the same time Wahlstedt et al (2008, p.1021) describe what they see as a “poverty of pedagogies” related to e-learning delivery that produce “unattractive and non-compelling learning materials”, “impersonal teaching” and “restricted or limited interactions”.

It must therefore be recognised that the educational landscape is changing and as such, research must be conducted that is contemporary to this evolving landscape. Crutsinger et al (2005, p.266) state that “an educational shift is occurring”, that is largely driven by the growth of flexible learning. This shift is, as Crutsinger et al (2005, p.266) explain, seen as being a cost effective method of providing “opportunities for non-traditional students attempting to balance work and family”. Furthermore, as stated by Chivers (2006) the role of e-learning within vocational education is placed to become a major challenge facing vocational education professionals in the years to come.

This paper will specifically focus on the educational challenges that e-learning delivery faces in terms of a particular theoretical framework, i.e. ‘experiential learning’. Furthermore this study will focus on educational programmes delivered wholly by e-learning technology as opposed to a blended learning approach, or what is referred to by Zhao et al (2009, p.96) as “lecture plus online work”.

Experiential Learning and the Learning Cycle

The role that ‘experience’ plays in the learning process has long been a topic of pedagogical research. Vince (1998) discusses Kolb’s hugely significant ‘Learning Cycle’ stating not only the fact that the cycle has
influenced much of the subsequent academic debate surrounding the nature of learning in general, but also the fact that Kolb saw experiential learning as crucial to wider learning. Relating this to vocational education one could argue that those engaging in learning that is directed towards enabling skilled employment are predisposed, to some degree, to utilising real world experiences (both concrete and those grounded in social constructs) in order to progress through the learning cycle.

Kolb (1984, p.41), as cited by Mainemelis et al (2002, p.5), defines experiential learning theory as “the process whereby knowledge is created through the transformation of experience”. Caple and Martin (1994, p.16) discuss the “widely acclaimed and applied” experiential learning sequence developed by Honey and Mumford (with acknowledged debt to Kolb’s own work). “Fundamentally”, continue Caple and Martin (1994, p.17), “Honey and Mumford and their adherents argue that learning from experience is critical to effective learning”. However “effective learning” can only be achieved, or at least is achieved most successfully, by the completion of a cycle that is made up of ‘having an experience’, ‘reviewing the experience’, ‘concluding from the experience’ and ‘planning the next steps’. The process of a related learning cycle, as described by Dennison and Kirk (1990), cited by Carnell and Lodge (2002), involves students ‘doing’, ‘reviewing’, ‘learning’ and ‘applying’. Questions arise however regarding the value of an experience that is not grounded in theory. Therefore one potential problem with this learning cycle is that the start point is based on what Caple and Martin (1994), citing Honey (1984), term ‘having an experience’. Caple and Martin (1994, p.18) argue that “learning from experience is ‘theory’ dependent”, and propose a learning circle that has “developing principles” as a starting point, followed by “testing in practice through action/experimentation”, “reflecting on experience” and “amending/adjusting original concepts”. However, whilst authors may disagree on whether ‘experience’ is a start point to learning or indeed whether experience is only useful if informed by theory, academics are in agreement that experience has a vital role to play in any of the well established cycles of learning.

Barriers to Experiential Learning

It should be noted that certain factors exist that either minimise the potential benefits of experiential learning or in some cases result in negative consequences. Vince (1998) highlights the fact that there are some activities that either cannot, or in certain circumstances should not, be learned from direct experience. This may be that by having the experience itself learners may suffer physical or mental discomfort and pain. Moreover, experience in an unfettered or unmonitored environment may be experience that is harmful to the individual in either a very real way or potentially in a way that perpetuates knowledge existing in a particular social context.

Petkus (2000) also discusses the benefits gained by completing the cycle i.e. by engaging in four distinct but interconnected roles of ‘the reflector’, ‘the theorist’, ‘the pragmatist’ and ‘the activist’. However, he found various practical barriers to completion - particularly little prior experience, together with a lack of opportunity to engage in real-world situational learning. Once again by applying this to e-learning within vocational education, there are question marks over whether the effectiveness of any such learning is perhaps unduly impacted upon by the existing/ongoing experience and personal access to experimentation that the learner is able to bring to the specific scenario.

Accelerators to Experiential Learning

There are several factors that facilitate, expedite and enhance experiential learning. Vince (1998) hones in on the fact that by reflecting on past experience, as well as experience in the ‘here and now’, a learner moves from an ‘actor’ to an ‘observer’, and from a position of ‘involvement’ to a more detached ‘analytical’ vantage point. This indicates that a student who approaches an e-learning programme with existing experience and the opportunity for experimentation in the workplace is more likely able to successfully complete the learning cycle.

There are, however, alternative methods of fostering experiential learning. “Concrete experience” is generally, seen to be antithetical to “abstract conceptualisation”, however, as stated by Mainemelis et al (2002, p. 5), both processes can be used to complete a learning cycle of “experiencing, reflecting, thinking, and acting”. Mainemelis et al (2002) discusses conceptualisation as a way of simulating direct experience whilst not relying on ‘real-world’ engagement. It is therefore useful to expand the definition of experience and seek alternatives to ‘concrete experience’ that may act as a proxy for the purpose of facilitating effective learning through experiential learning. An alternative perspective on experiential learning that may enable vocational e-learning students to progress through the learning cycle with limited personal experience may be the involvement of a peer-learning community that is intrinsic to the course design/delivery. This suggests the possibility of students sharing resources (and possibly experiences) in order to meet their learning needs. A well-constructed peer
element in e-learning programmes may help alleviate or indeed overcome barriers to experiential learning discussed previously. Indeed, Tosey (1999, p. 409) expressly links peer learning with experiential learning, citing one benefit of using such learning methods as “collective learning” derived from “individuals who are engaged in learning”.

Sproken-Smith and Harland (2009) discuss problem-based learning as an active learning mechanism that does not require or rely on concrete experience in the form of work-based learning. In this respect problem-based learning becomes a simulation to real world experience that still allows students to progress through a successful learning cycle. It is therefore worth clarifying that both problem based learning and the use of peer-learning can still be considered as experiential learning methods within the right context.

The Nature of Vocational Learners

At this point it is necessary to relate the previous discussion on experiential learning to the characteristics of vocational learners in order to evaluate the case for the inclusion of experiential learning techniques within vocational e-learning programme design. To add weight to this assertion, and to relate the statement specifically within the context of e-learning it should be stressed that “learner characteristics” are seen to be crucial factors in the “outcomes of e-learning” as stated by Ho et al (2009, p.56).

Ackerman and Hu (2011, p. 273) define active learning as being driven by the learner, and often including “experiential learning”, “fieldwork”, and “computer-assisted instruction”. Furthermore, the relative success or failure of active learning methods may depend upon the autonomy of the learner. Action learning methods of instruction are more suitable for learners who exhibit a more autonomous learning style.

Sadler-Smith et al (2000, p. 241) state that individuals engaged in continual professional development are likely to employ some element of self-direction, be it “autonomy, learner-centred, flexible learning, open learning, self study, distance learning and so on”. Furthermore, their preferred learning styles will revolve around activities that they perceive will most effectively allow them to achieve their goals. These goals are likely to include career improvement/development, as well as increasing the “feeling of self-worth” and engaging “in learning for its intrinsic worth”. Haywood and Molesworth (2010) found that, in certain instances, students enrol on vocational degrees as an entry route into a particular career.

Ineson (1996, p. 10) indicates that success in vocations does not rest purely on “intellectual factors but also on qualities pertaining to temperament, interests, personality and environment.” Hassall et al (2010) state that it is this vocational aspect of HE provision that employers would like to see strengthened rather than specific technical knowledge. Nkirina (2010, p. 153) agrees that vocational education is a crucial “remedy to skill deficiency” and also stresses the importance of entrepreneurship within the vocational education curriculum, particularly within business and management education. The importance of entrepreneurship within vocational education, as well as flexibility and innovation, is also stressed by Lam et al (2008). In essence, whilst there are specific recommendations for the design of programme outcomes related to different vocational areas, the overriding goal is that programmes develop the vocational aptitude required for graduates to succeed in their chosen career. This focus is best served by utilising experiential learning as stressed by Nkirina (2010) who details the increasing emphasis on experiential learning within vocational education theory.

Seezink and Poell (2010) discuss the fact that vocational education is often related to a competency based approach. Competence-based vocational education, continue Seezink and Poell (2010, p. 457), “is based on constructivist learning principles and focuses on actively involving pupils in learning processes situated within authentic environments.” This is seen as being diametrically opposed to simple “knowledge transfer”.

The importance of this practical work experience in vocational education, as discussed by Rauner (2008) further strengthens the argument for a ‘hands on’ approach to the delivery of vocational education and therefore questions need to be asked regarding the suitability of e-learning delivery. Sheldon and Thornwaite (2005, p. 404) also stresses the need for vocational education programmes to develop the employability skills of graduates and states that vocational education is taking on renewed importance due to “skills shortages”. These employability skills include “employer-preferred values, attitudes and personality dimensions” that go beyond “work-related technical” skills.

Ineson (1996, p. 11) confirms the fact that employability is the key to successful vocational education, but also states that this is not always achieved, “some high achievers... appear to find it difficult to obtain employment because they do not possess certain ‘desirable’ attributes”. Furthermore there is a feeling that students were being taught to pass the course rather than being trained to be an effective employee.
Interestingly Barron and Anastasiadou (2009) argue that some vocational degree provision is not providing students with necessary employability skills and that this is instead being provided in ad-hoc fashion by part-time employment. Barron and Anastasiadou (2009, p. 144) go on to argue that as certain practical elements disappear from the vocational hospitality curriculum due to cost implications, the “experience of the world of work” that students often acquire during study should play a greater role in the educational experience.

Methodology

Primary research comes in the form of a content analysis of a vocational e-learning programme. A range of e-learning materials were analysed that relate to a specific module of a ‘Foundation Degree in Managing in Service Industries’ programme. This programme has been chosen for a number of reasons. The programme is clearly a vocational programme, in keeping with the categorisation of vocational education by Maliranta et al (2010). The programme is delivered entirely through e-learning technology so ‘fits’ within the parameters of the research question. University College Birmingham clearly indicates that the programme is specifically designed to enable students to develop their careers and to equip them with the ability of applying management theory within an industry setting. Finally, students with previous work experience within a relevant sector are explicitly targeted for recruitment. These factors all combine to highlight the suitability of this programme regarding the inclusion of experiential learning principles within the design of its learning materials.

The content analysis identified 15 aspects of experiential learning and mapped them across 126 learning objects contained within the vocational e-learning programme. This approach, as discussed by Ritchie and Lewis (2003, p. 200), involves the analysis of both the “content and context” of materials. Schreier (2012) discusses this ‘non-frequency’ approach and justifies its use as a method of analysing content as it allows for greater flexibility, a deeper consideration of context, and a more inductive interpretation of data. This heightened ability to be inductive may allow for data to reveal categories and concepts – an important advantage when dealing with content that is more complicated than typical frequency based data. In addition, whilst attempting to put any measure on quality can be problematic, as stated by Sale and Sale (2005, p. 915), this approach also allows the content to be evaluated against quality measures indicated within the literature review.

Discussion of Findings

The use of ‘past experience’ was evident in 21 learning objects (or 16.7% of the 126 total learning objects analysed), ‘here and now experience’ was evident in 4 learning objects (3.2%), ‘concrete experience was evident in 19 learning objects (15.1%), and ‘social construct experience’ or ‘conceptualisation’ was evident in 16 learning objects (12.7%). In addition, the programme documentation, as discussed in the primary research interview, clearly states that one of the learning outcomes of the programme as a whole is to ensure that students are able to relate theoretical input to an industry context. It is therefore very clear that the programme seeks to utilise experiential learning practices in order to maximise learning and that the favoured method is to encourage reflection on past experience. This is perhaps the most logical position to adopt as developing ‘here and now’ experiential learning is clearly problematic when delivering learning materials online. In fact three of the four learning objects that do hint at ‘here and now’ experience do so in a very superficial fashion and the one remaining learning object to mention ‘here and now’ experience, does so in conjunction with ‘past experience’.

None of the learning objects exhibited any content relating to ‘potentially harmful’ or ‘perpetuating’ experiences, neither did they relate to experiential learning based on ‘little prior experience’, or content that would be hampered by a ‘lack of opportunity to engage in real-world situational learning’. 25 learning objects (19.8%) were classified as having content that related to a ‘deep (transforming) approach’, and 4 learning objects (3.2%) were classified as having content that related to a ‘surface (reproducing) approach’.

A potential inconsistency between the discussed literature and the case study learning materials is the approach to the module outcomes. Several authors discuss likely desired outcomes for vocational students with the majority of commentators, ultimately including Sadler-Smith et al (2000), focusing attention on more quantifiable goals relating to career progression and employability. Haywood and Molesworth (2010), Nkirina (2010), Seezink and Poell (2010) and Ineson (1996) all focus on motivations for studying that ultimately equip graduates for a career in a vocational industry. For the purposes of the content analysis this was categorised and divided into what Seezink and Poell (2010) term ‘competence-based vocational education’ that provides specific skills versus what Sheldon and Thornwaite (2005) term ‘employability skills’ relating to personality dimensions that are uniquely advantageous to vocational learners. The content analysis revealed that none of the learning
objects examined were designed to specifically develop either competence-based skills or the “employer-preferred values, attitudes and personality dimensions” proposed by Sheldon and Thornwaite (2005, p. 404).

Taken at face value this result could be used to further question the perceived standing of vocational higher education and particularly the delivery of vocational education in an e-learning setting. Barron and Anastasiadou (2009) and Ineson (1996) both highlight a criticism of vocational education, i.e. that it does not produce effective employees. Indeed, it is evident within the content analysis that the learning materials developed in this instance have not been designed in such a way as to refute criticism of vocational education - indeed the perceived shortcomings are arguably exacerbated. However this is not necessarily an accurate conclusion. One of the arguments presented by Barron and Anastasiadou (2009, p. 144) is that vocational curriculums do not include enough “experience of the world of work” but if a student’s education is viewed holistically then a different picture emerges. In the case of a vocational e-learning programme it is the experiences obtained whilst working (both past and in the here and now) that can be used to acquire employability skills and technical competencies whilst the theoretical input allows the student to reflect, to form abstract concepts and generalisations and to then introduce or ‘test’ the application of this deeper understanding within the workplace. When framed in this fashion it can strongly be argued that an e-learning vocational education programme that can benefit from a complementing work environment can overcome some of the barriers evident in traditional delivery. This finding is in complete accordance with the findings of Ladkin et al (2009) who came to the paradoxical conclusion that distance-learning equals a closeness to the work setting and therefore a more complete experiential learning cycle. If this approach were to be adopted it would also be in keeping with the findings of Wilson et al (2005, p. 113) who discussed a general move towards combining “HE qualifications with work based learning”.

Figure 1, labelled as ‘the Vocational E-Learning Cycle’, is based on Kolb’s learning cycle and demonstrates how the learning cycle can be completed in practical terms, i.e. the divide between work-based learning and vocational e-learning programmes.

![Figure 2 The Vocational E-Learning Cycle](image)

**Conclusions**

Experiential learning principles are more effectively incorporated into vocational e-learning programmes when the student is able to reflect on previous experience. Authors including Vince (1998) and Petkus (2000) are
clear that reflecting on previous experience is an essential aspect of the learning cycle proposed by Kolb (1984), cited by Mainemelis et al (2002). Whilst the concept of a learning cycle has been the subject of much discussion, it is the process of ‘doing’, ‘reviewing’, ‘learning’ and ‘applying’ discussed by Carnell and Lodge (2002) that best illustrates this principle in relation to vocational e-learning.

Reflection and conceptualisation can be used to limit any potentially harmful or negative results of utilising experiential learning concepts. Petkus (2000) identifies that the learning cycle becomes difficult to complete when students have little prior experience or lack of opportunity to engage in situational learning and Vince (1998) indicates that experiential learning can be harmful if it endangers the student or perpetuates an undesirable state of affairs. These threats can easily be overcome if the e-learning materials utilise the conceptualisation approach promoted by Mainemelis et al (2002) or, more preferable if the entry requirements guarantee that students are able to reflect on previous experiences.

The potentially isolating nature of e-learning programmes may limit the benefits of peer-learning communities. Although the benefits of peer-learning communities identified by Tosey (1999) are only possible if e-learning programmes are designed to recruit a ‘cohort’.

Vocational e-learning programmes can effectively facilitate the completion of the learning cycle when viewed in conjunction with vocational employment. This is perhaps the most important and potentially influential conclusion drawn from this paper. Vocational education could be transformed with the adoption of e-learning programmes that provide theoretical input and allow for reflection on past experience whilst at the same time factoring in application and experimentation in the workplace. This ‘dual’ approach represents a significant development in pedagogical practice and allows learners to develop competency and employability skills in the workplace whilst allowing them to become informed, active practitioners able to reflect, develop and mature and ultimately synthesise their own methods and systems throughout their careers. It can therefore be concluded that the combination of experiential learning methods and e-learning delivery could greatly advance the effectiveness of vocational education.

References


The Use of Google As An Enhancer In Education For The Youth

Tang Mui Joo, Dr.
Mass Communication Division
School of Social Science and Humanities
Tunku Abdul Rahman University College
Malaysia
tangmj@acd.tarc.edu.my

Chan Eang Teng, Ms.
Mass Communication Division
School of Social Science and Humanities
Tunku Abdul Rahman University College
Malaysia
chanet@acd.tarc.edu.my

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Abstract

The Internet has become popular majorly because of its wealth of useful information and its convenience of information searching. It has been increasing gradually at 64.6% from 2000 to 2010. People are in the midst of information searching without realizing that Google has become the top search engine being used in all areas including educational purposes. This paper is to study the use of Google services as an enhancer in learning, particularly services like Google Scholars, Google Books and Google SketchUp, among the youths in the aspect of education. This paper is also to determine the perception of youths towards Google in the use for education. This research adopts the theory of Diffusion of Innovation to study the phenomenon of Google use among the youths. Online survey was carried out using Google Documents, which was posted up among Facebook friend lists. Snowball was applied in compiling the data of respondents as the survey was open to voluntary respondents and was rolled till 100 of them only. The results shows that the use of Google in education is extensive, with the exposure of overloaded information environment. Education facilitators and learners should look into the issue of plagiarism and abuse of massive information when this world is provided with free content and facilities of services at their own convenience.

Keywords: Google, education, enhancer, academic services, Google Scholar, Google Books, Google SketchUp

Background

The Internet has become popular majorly because of its great wealth of useful information and its convenience of information searching. Internet World Stat (2010) shows that Malaysian Internet users had increased from 3,700,000 in 2000 to 16,902,600 in 2010. It has increased gradually at 64.6% within that ten year. Of all the search engines for the purposes of information searching, Google is now one the most preferred search engines (Purcell et al., 2012), whereas Yahoo has been the first web service provider which provided users with the capability of searching online information (Barbara and Medoff, 2001).

Bruemmer (2001, cited in Vaughan and Zhang 2007) has stated that 75% of web users rely heavily on search engines as the primary tool and therefore, the significance of search engines in an information society should not be underestimated. Purcell et al. (2012) found that Google search users grew significantly from 47% in 2004 to 83% in 2012. Griffiths and Brophy (2005) also stated that there are 45% of students using Google as their first port of call when searching for information. All these figures have highlighted the loaded use of Google in the process of learning among students.
Hargittai (2007) stated that the use of search engines has become one of the most popular activities among the web users. The youths are now dependent on Google for searching information. It is because Google has become dominant for all users among all the possible keyword search engines (Reeves et al., 2009). It is also claimed that students are increasingly dependent on Google and Google Scholar, where 60% of students normally use Google to access Internet-based research content.

Becker (2003) stated that many college students continue to assign unwarranted primacy and authority to information found through Google. Reeves et al. (2009) emphasized that the research content has been written in a difficult style. It has prompted students to copy and paste the original idea from Google into their works. Other than that, students might not know how to transfer and organize all the information into structured information effectively due to information overload (Becker, 2003). At this point, search engines have been criticized for providing too much information (Couverying, 2007). This might confuse students when it comes to sifting through all the answers (Reeves, 2009).

Looking at the potential good and bad use of search engines in learning, this research serves to investigate the effective use of Google as an enhancer in the aspect of education among the youths. This research is also to determine the perception of youths towards Google in the use for education.

**Academic Services Provided by Google**

There are three major academic services of Google to be discussed. The services are Google Scholar, Google Books and Google Sketchup. Google Scholar was developed by Anurag Acharya, an Indian-born computer scientist (Noruzi, 2005). It was launched in November 2004 with the aim of identifying scholarly information on the web and making it accessible (Robinson and Wusteman, 2007). It consists of international coverage journals, articles and scholarly resources that come with a sub-list under each article of the subsequently published resources that cite the article. By using Google Scholar, it leads a researcher to the latest articles. It identifies relationships between articles, breaking through disciplinary and also geographic boundaries (Noruzi, 2005). Other features of Google Scholar include tracing articles cited in a particular article, combining searches of words from an article title, keywords and authors and domain name search.

Google Books is a digital, Internet-based context (Jones and Janes, 2010). The first five libraries that signed up with Google Books are Oxford, Harvard, Stanford, the University of Michigan, and the New York Public Library. Jones and Janes (2010) further stated that the potential size of the system-wide collection is around 130 million volumes. Books that are out of copyright are labeled as full view and every page of the books can be viewed; in most cases, these books can also be downloaded as PDFs and can also be printed (Weisbard, 2007). Readers can transmit information about themselves by searching for particular terms, browsing through particular authors or subjects, copying and printing out particular pages through Google Books (Jones and Janes, 2010).

Google SketchUp is the first free software to design professional 3D and 2D models easily. It comes with a pro/paid version. Its major advantage is that it enables the first timer to learn in a fast way of how to operate the program within hours (PlugReview.com, 2011). SketchUp is invented for users to visualize their creative ideas in three dimensions (Chopra, 2007). It is commonly used at home, in school and also at work to produce 3D information.

**The Use of Google in Education and Its Role**

Google users have been increasing gradually every year as stated by Purcell et al. (2012). In 2004, 47% of people often used Google, 26% used Yahoo and only 27% preferred other search engines. In 2012, 83% of surfers used Google compared to other search engines. The increasing percentage has shown the possible significant impact of Google among the surfers.

According to Howard and Massanari (2007), there were 29% of people with college degree in 2000 and the number increased by 2% to 31% in 2004. This is indirectly related to the use of Internet and search engines for the purpose of information searching to proceed with assignments in learning and education. Purcell et al. (2012) have further added that the age group of 18 to 29 years old is the group hitting the top use of search engines compared to other age groups. This group of people has shown 96% out of 91% of online adults using search engines. This is also the group of people at the stage of pursuing tertiary studies at a college level. The next top users are those in a high school level.
Students use Google Scholar for their academic purposes because of its journals, literature, books and legal texts that can easily be found in it. It allows students to refer as academic use with bibliographies and proper citations (Marra, 2012). Other than that, Google Books can now greatly enhance students and scholarly quests (Weisbard, 2007). Google Books are defined as digital as it is able to let the readers to read with full view if they are reading the books which are labeled out of copyright. These books can be downloaded as PDFs and printed. It has made education more convenient and approachable.

PlugReview.com (2011) stated that Google SketchUp is the first free design software that comes along with a pro/paid version. Google SketchUp is served as an open source software to design 3D and 2D models easily and professionally. Students who are in the field of arts and design would benefit from the free software provided as a preliminary entry to be familiar with other design softwares.

The role played by Google in education is that it provides e-journals, books, modeling of 3D and 3D. it is where it has made learning much easier, more convenient and fun.

Theoretical Framework and Methodology

This research uses Diffusion of Innovation in studying the process of learning in the environment of Internet. The basic idea of Diffusion by Rogers (1962) is that it is a process through which an innovation spreads via communication channels over time among the members of a social system. The diffusion rate is not necessarily a question of when an adoption takes place. It is rather about who is adopting. Sahin (2006) suggests that the innovativeness of potential adopters covers from innovators, to early adopters, to early majority adopter, to late majority adopters, and ending with laggards.

This theory is adapted in this research as it finds out how often mass communication students and ex students majoring in media studies, public relations, advertising, journalism and broadcast communication, use Google in searching information for their assignments. This is also to figure out when the students have started using Google and from there it is to determine the stage the students are in within innovators to laggards in learning.

This research is conducted using snowball online survey with the random sampling of students from the Main Campus of Tunku Abdul Rahman College. The sample is only from Advanced Diploma, Diploma, Certificate and ex-students of School of Social Science and Humanities majoring in Advertising, Broadcast Communication, Journalism, Media Studies and Public Relations. The age group of this sample ranges from 18 to 25 years old.

The questionnaire is designed to meet the research objectives to find out the effectiveness of Google use in the aspect of education among the youths. It is also designed to determine the perception of youths towards Google in their learning. This research has been carried out within the time frame of a week, from 1 to 7 November 2012. Google Documents is used for this online survey. The questionnaire is posted up among students’ Facebook friend lists. It is to collect only voluntary respondents who meet the criteria as stated earlier on. The snowball data collection was ended once the respondents reached the number of 100 within the week.

Results and Discussion

Only data from 100 respondents’ have been analyzed in this research. The data have been categorized into a few segments for the discussion of this research and to meet the objectives of it.

Demographic Information

Among the respondents, 58% of them were between 18 to 20 years old; 37% of them were between 21 to 23 years old; and, 5% of them between 24 to 25 years old. Only 1% of the respondents were taking certificate courses, 52% of them were Diploma holders, 33% of them pursuing Advanced Diploma, 11% of them are Degree holders and 3% of them are post graduates.

This segment reflects the perception of the youths towards Google in the aspect of education. Different educational levels may perceive and use Google in a different manner.

Google Use for Educational Purposes
Respondents were given more than 3 categories of Google services as discussed in the literature review. Other categories added in are Google Mail, Google Image, Google Chrome, Google Trends, Google Translate, and Google Maps. These added categories are non-academic features used among surfers in Google.

The respondents were allowed to select more than a category for this section. 68 respondents and 66 respondents actually perceived Google Translate and Google Books are for educational purposes. 4 respondents thought that Google Trends was for the purposes of education. Most of the respondents perceived and used Google Translate in education and half of them were aware that Google Books and Google Scholar are for education purposes too.

As for the sub-conclusion here, respondents are confused with the use of Google in education. They have made use of other Google services to be slotted in their learning. When Google Translate is used for their education purposes, there might be the tendency of students using foreign language information and translated them to the language requested for their assignments, without considering the issue of plagiarism. Somehow, this issue is not the focus of this research and will be conducted in the next research. On the other hand, there are few of them who are aware that Google SketchUp can actually enhance the skills in design for Arts students.

**Use of Google in Education**

Based on the experience of Google use, the respondents reveal that they have started using Google since they were in secondary schools. There are 96 of them who were frequent users of Google Search. 22 of them were frequent users of Google Scholar, 7 of them were frequent users of Google Books and only one of them was frequent user of Google SketchUp.

There are 48 respondents who disagreed that they prefer physical library than Google Books or Google Scholar. Half of the respondents agreed that they prefer Google Book and Google Scholar as they are allowed to access them from anywhere at any time. On top of that, 62 of the respondents also agreed that they can access the latest version of online articles and journals as compared to physical library.

There are 72 respondents who agreed that Google Scholar has a wider variety compared to physical library. 55 respondents agreed that they use Google Scholar to search for articles and journals. The result shows that the majority of the respondents agreed that Google helps them in completing their assignments.

In terms of the use of Google in students’ researches and assignments, 41% of the respondents think that Google has helped them the most. It is also found that the majority of the respondents use Google more frequently than other search engines. The result also shows that Google has been extensively used among the youths in the aspect of education.

**Conclusion**

As reflected from the findings of this research, it has been a practice among the youths to do research and assignments using Google. There are no doubts that Google has become an enhancer in terms of learning. It is where Google provides convenience in terms of time and space in their information search. The discussion has also highlighted that the use of Google in education mostly started since secondary school. It is proven that Google has successfully attracted youngsters to the use of information provided by Google. The phenomenon of Google use in education has also reflected the theory Diffusion of Innovation that the youths are the early major adopters of the new media and Google over time among the members of the society. The phenomenon will develop to the later part where the practice will be spread through and out to late majority adopters, and ended with laggards. It is suggested here that the stage of laggards might be filled with massive abuse of online information and plagiarism without the realization of the youths.

This is, therefore, the responsibility of education facilitators and learners to be alerted on the condition of information overloaded era. People of all areas have to be aware of the issue of plagiarism and piracy in learning before they fall into the category of laggards.

**References**


Sub-theme A: Digital Learning & Teaching Eco-System


“All Hype, No Relevance? Students’ Perceptions of Marketing Education”

Audrey Malenee a/p Mariadass
School of Business Studies (Perak Branch Campus),
Tunku Abdul Rahman University College, Malaysia.
audreymm@acd.tarc.edu.my

S. Chee, Choy
Head of Perak Branch Campus,
Tunku Abdul Rahman University College, Malaysia.
choysc@mail.tarc.edu.my

Abstract

This research is conducted to determine students’ perceptions of the relevancy of marketing education as part of their business studies programme. It must be noted that many tertiary institutions have started to incorporate marketing courses as part of their programmes, as it is thought to provide students with a competitive advantage and an opportunity to be at par with the changing business environment. There is a dearth of research into students’ perceptions of marketing education, especially in the Malaysian context. At present, most marketing education studies have focused mainly on marketing teachers and the teaching of marketing education. There is still a need for determining possible links between students’ perceptions and their performances in a marketing course. Added to this, studies have shown that students place more effort in learning when they view the subject matter as relevant to their future careers. For this research, data was gathered from a cohort of eighty students who were randomly chosen and invited to take part in a series of surveys. The respondents consisted of students who majored in marketing and those who had marketing as a course in their programme of study. The perceptions and experiences of these respondents when learning marketing were analysed. The results showed that students who majored in marketing favoured these courses more and mostly outperformed non-marketing majors. However, this may only hold true in the context being studied. Further research could be carried out to analyse other contributing variables that could influence students’ perceptions of marketing education.

Keywords: Marketing Education, Students’ Perceptions, Relevancy of Subject Matter, Students’ Performance

Introduction

There is currently a dearth of research into students’ perceptions of marketing education especially in the Malaysian context. Most of the research carried out has been from a western perspective and essentially focused on marketing teachers (Roach, Johnston & Hair, 1994) and teaching of marketing education (Tregear, Kuznesof & Brennan, 2007). In order to enhance the relevancy of marketing education in the constantly changing business environment today, the perceptions of students toward learning marketing is important. In a study on students’ perceptions of a marketing course, Celuch & Slama, (2000) found that consistency in the approach to teaching the course made a difference in the manner in which students responded to the content of the course. However, the research did not attempt to assess students’ perceptions of the content material but was more interested in determining the effectiveness of the teaching strategies used. However, the effectiveness of the teaching strategies is often influenced by students’ perceptions of the relevancy of the contents they have to learn.

In another study on students’ perceptions about business communication by McPherson (1998), it was found that student perceptions of the relevance of the course content to their future careers determined if they would make the effort to learn the content material. The study found that student did not make an attempt to learn materials they perceived as not relevant for their careers. Students were not influenced to learn the content
material even when they were told by their instructor the importance and relevancy of the material they were
learning.

Content versus Context

Students’ interpretation of their contextual environment has been found to influence their learning (Vermunt,
2005). According to Entwistle (2000), there are three factors that influence students’ learning: student
characteristics, teaching characteristics and departmental characteristics. He includes among students
characteristics: prior knowledge, intellectual abilities, personality, attitudes to courses, motivation, study skills
and work habits. Teaching characteristics encompass level, pace, structure, clarity, explanation, enthusiasm and
empathy to teaching. Departmental characteristics encompass course design and objectives, learning material,
assessment criteria, workload, freedom of choice and study skills support. These characteristics help determine
whether students take a surface approach or a more deep approach to learning a course. Vermunt (2005) stressed
the importance of the influence of students’ context on their learning in a course. It is known that students with
little educational experience, irrespective of age, do not do as well in courses suggesting that an increase of
formal education allows students to develop strategies that help them to become more engaged with their
learning.

According to Hernandez (2003), students learn better if the content they are learning is set in a context that they
can relate to, hence using prior learning as a bridge to new learning. In order for students to communicate ideas
effectively, what they are learning must be placed in context to allow for meaningful interaction to take place.
As such, in marketing courses, which are often content driven, it is essential for instructors to focus on the
context of the course material as well as share the context of the instructor with students.

Before we progress further with our discussion it is important at this point to define the meaning of perceptions
in the context of marketing courses. Perceptions in this study encompass students’ reactions to the course
content material as well as their opinions about the effectiveness of the course to help them in their future
careers. The students’ willingness to move beyond focusing on content to an awareness and appreciation of
how one is thinking of the content will also be studied as this will give a more complete view of marketing
education.

The Present Study

This study will attempt to highlight student perceptions of the concept of marketing as well as the content and
delivery of the course. In order to help us keep focus, two research questions (RQ) will underpin the study:

RQ1. What are students’ perceptions of marketing and marketing education?
RQ2. Are these perception reflected in their performance in the course?

This research was carried out using the qualitative approach on a sample of marketing major and non-marketing
major students in a Malaysian Institute of higher learning. A longitudinal research concept was adopted to note
changes in students’ perceptions over the period of studying a marketing course. The students were given survey
forms to be filled in at the end of each class. They were encouraged to write down their perceptions based on the
questions asked.

Research Methodology

For this research, a cohort of eighty students were randomly chosen and invited to take part in a series of
surveys. These surveys were handed out to students over the course of ten weeks. The entire survey consisted of
twenty open-ended questions which enabled the students to record their own ideas and beliefs in their own
words (Cooper & Schindler, 2006). This allowed for a better assessment of what the students truly perceive
(Cohen, Manion & Morrison, 2000). The informed consents of the students were obtained and the cohort was
told they could withdraw from the study at anytime they wished. They were also told that the data obtained for
the study would only be viewed by the researcher and their identities would be kept confidential.

Probability sampling was chosen as the main sampling method. Specifically, students were selected through
proportional stratified sampling technique as it ensures that a fixed number of sampling elements are included in
two or more groups (Jarboe, 1999). They were first segregated into two mutually exclusive strata which
consisted of marketing majors and non-marketing majors. This was then followed with a simple random selection of forty students from each stratum in order to obtain a balanced cohort of eighty respondents.

Prior to the handing out of survey questions, a pre-test was done by using the same procedures and methodology on twenty randomly selected test samples. Minor changes to the wording of questions were made based on the pre-test results. The surveys were then handed out to the intended respondents. Following that, the responses were analysed and interpreted. Each survey response was read and re-read till commonalities appeared. These commonalities were then grouped under several identifiable themes. These themes were then used to answer the RQs.

**Results**

**RQ 1: What are the students’ perceptions of marketing and marketing education?**

When the results of the survey was analysed, several themes emerged that were used to answer the above RQ. The themes were: the importance of learning marketing; usefulness of marketing education for future careers; and relevance and importance of marketing education;

a) The importance of learning marketing

All marketing major students and 97.5% of non-marketing major students perceived that it is important to learn marketing. They perceived learning marketing as important for their future careers. However, it is interesting to note that the reasons given by marketing major students for this perception were different from those given by non-marketing majors.

Marketing major students perceived learning marketing would help increase their employment opportunities as they would learn the necessary work skills to better manage their roles as future marketers. For example, Student A commented:

“Learning marketing is important because I can learn some marketing skills. These skills are suitable for me to work for any business industry and help me to become a marketer who can make the right decisions at the right time.”

Conversely, non-marketing major students perceived that it is important to learn marketing as it provides a foundation for those who are interested in inheriting or starting their own business. As commented by Student B:

“I think it is useful for our future, like when I start my own business or when it is time for me to inherit my family’s business. It will help me sell effectively to my clients.”

**Discussion**

Both groups viewed marketing as an important course, but this perception was from two different perspectives. The marketing major students who have been exposed to marketing courses from the start of their programme viewed it as a principle course and a necessity. It was perceived that over the duration of their study, it would help them learn the necessary skills needed to work as a marketer. On the other hand, for non-marketing major students, this marketing course is seen only as a supplementary course as they experience it only once or twice throughout the duration of their study. This would seem to support the research conducted by Vermunt (2005) who found that the students’ educational experience with respect to their levels of prior education influenced their perceptions about learning. Therefore, the more a student is exposed to a course, the more it is perceived to play a significant role in their lives and future.

b) Usefulness of marketing education for future careers

All marketing major students and 97.5% of non-marketing major students perceived that exposure to marketing would be useful for their future careers. They were very specific with the reasons why this exposure would be useful. Both groups of students perceived that marketing lessons provided relevant knowledge that could be utilised in their future work tasks. Marketing major, Student C noted:
“The strategies learnt in the classroom can be fully utilised. For example, we know how to use the specific marketing terms when preparing a proposal for work.”

Likewise, non-marketing major, Student D commented:

“If I become a programmer in the future, I would need to understand the changing demands for software and write suitable programmes for it. My lecturer told us that with marketing, I would learn how to analyse the needs and demands of the market and so, I believe I can apply it in my job.”

Discussion

The content of the marketing curriculum is perceived by both groups of students to be useful for their future careers. It is believed that marketing courses prepare students for employment as marketing competence is incorporated in the course. This would seem to support the research done by Wellman (2010) who developed a revised marketing competence model that showcases a strong interest in bridging the gap between theory and praxis, further highlighting how a marketing course could generate employability.

Adding to this, a lecturer’s role when delivering the content material in the relevant context will also help form some of the students’ perceptions of the usefulness of a marketing course. This seems to support Entwistle (2000) who mentioned that teaching characteristics such as the lecturer’s explanation, clarity and structure of teaching would influence the students’ learning and perception.

c) Relevance and importance of marketing education

Towards the end of their semester, all marketing students remained consistent and re-affirmed that marketing is important by agreeing that the course should continue to be kept as part of their programme. On the contrary, compared to the response received during the beginning of the semester, there was a decline in the number of non-marketing students in agreement as 35% of these students no longer found marketing relevant to their future.

Marketing majors found it relevant and felt should be kept as part of their programme as it forms the core of their programme and is related to their career. For example, Student E commented:

“In our programme, marketing courses are considered as a main subject for us to learn. Without marketing courses, being a marketer in the future is useless because we would look clueless about how to do our job.”

Non-marketing majors, however, no longer perceived marketing as important. They perceived that it had no relevance to the programme they were pursuing and were overwhelmed with the amount of information in the course. For example, Student F commented:

“No, I don’t think it should be kept. This is because, I do not need to use marketing in my programme or even when I’m doing any of my other courses’ assignments. Besides that, there’s so many theories and terms that I need to study and remember.”

Likewise, Student G noted:

“Marketing knowledge is not important or useful in the area that I’m studying now as it is not related to my programme.”

Discussion

The consistency shown by marketing major students regarding the relevance and importance of marketing could be attributed to the context of the course. Marketing courses that focus on content and educational marketing materials are usually set in a context that showcases the application of marketing strategies by marketers. Each marketing course learned by marketing students is an extension of the marketing concepts previously learned. This finding supports the research done by Hernandez (2003) who found that students learn better if they can relate what they are learning with the context which it is learned. Thus, they find it easier to relate to this course.

In contrast, the non-marketing major students could not relate what they had learned from marketing with their other courses, as it appeared to be a stand-alone course with content material unrelated to the course of the
programmes they were pursuing. The research by Entwistle (2000) supports the difference in perceptions in the two groups. Even though the teaching-learning environments affected students; they seemed to occur in a uniformed manner. Non-marketing majors compared to marketing majors had to struggle to retain and remember all that was learned in this marketing course. This contributed to the negative perceptions and feelings about this course. This seems to support research by Marton and Saljo (1997) whose research showed that the sudden confrontation with thousands of concepts, theories, strategies or terms was a shock for many inexperienced students. This made them second-guess their initial opinion of the course.

RQ 2: Are these perceptions reflected in their performance in the course?

The results of the students’ performances in the marketing course are summarised as follows:

<table>
<thead>
<tr>
<th>Programme</th>
<th>Coursework</th>
<th>Final exam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade</td>
<td>Percentage</td>
</tr>
<tr>
<td>Marketing major</td>
<td>A</td>
<td>95</td>
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<tr>
<td></td>
<td>B</td>
<td>5</td>
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<tr>
<td></td>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>Non-marketing majors</td>
<td>A</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>30</td>
</tr>
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<td></td>
<td>C</td>
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<td>F</td>
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<tr>
<td>Total</td>
<td>100%</td>
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</tbody>
</table>

Table 1 Students Performance in their Coursework and Final Exam

Discussion

As shown in Table 1, both groups of students performed well during the evaluation of their coursework. Marketing major students performed better as 95% of the students attained an A grade for their assignments and mid-term tests. This is in line with the perceptions of marketing major students that marketing is important and relevant to their current programme and future careers.

It is interesting to note, when compared with their coursework grades, both groups had some measure of decline in their final exam results. Although students who majored in marketing perceived the course as relevant and important, these perceptions did not translate into their actual final exam results. Added to this, 27.5% of non-marketing major students failed their final marketing exam. The higher failure rate than marketing major students seems to reflect the change in perceptions of the 35% of non-marketing major students who now perceived marketing to be irrelevant to their programme or needs.

Conclusion

The results from this research gave a glimpse of students’ perceptions of marketing and marketing education. It is found that marketing major students viewed marketing important as it helped increase their employability in the marketing sector while non-marketing major students viewed it as a tool that would help them run their own business. The difference in perception of importance must be noted. Marketing major students viewed themselves as employees while non-marketing major students viewed themselves as employers. However, both groups collectively perceived the exposure to marketing as useful for their future careers.

Changes in the opinion and perceptions of non-marketing majors started to emerge towards the end of their course. Non-marketing majors found the course irrelevant for their needs or future. One underlying reason was the feelings of being overwhelmed with new information through the sudden exposure to marketing which was introduced in the midst of their two year programme. Added to this, the students could not find any relationship between this course and the other courses studied in their programme.

These changes are reflected in their overall final exam performance where there was a higher failure rate among non-marketing majors. It was also surprising to note, that the marketing major students’ performance suffered a
decline as well during the final exams. However, the reasons for this decline are not obvious from the data collected.

In light of the results obtained from this research, more study needs to be carried out to further analyse other variables, such as exam paper content and form, which may have contributed to the decline in exam results. Future studies may expand on this research by including additional variables such as students’ existing interest, practicality of the course and even the students’ perception of the course’ syllabus.

**Acknowledgement**

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**References**


National curriculum reform and equipping pre-service teachers to teach about Australia in the Asian Century.

Dr Deborah Henderson  
School of Curriculum  
Faculty of Education  
Queensland University of Technology (QUT)  
Australia  
dj.henderson@qut.edu.au

Abstract
Currently a range of national policy settings are reshaping schooling and teacher education in Australia. This paper presents some of the findings from a small qualitative pilot study conducted with a group of final year pre-service teachers studying a secondary social science curriculum method unit in an Australian university. One of the study’s research objectives aimed at identifying how students reflected on their capacity to navigate curriculum change and, more specifically, on teaching about Australia and Asia in the forthcoming implementation of the first national history curriculum. The unit was designed and taught by the researcher on the assumption that beginning social science teachers need to be empowered to deal with the curriculum change they’ll encounter throughout their careers. The pilot study’s methodology was informed by a constructivist approach to grounded theory and its scope was limited to one semester with volunteer students. Of the pre-service teacher reflections on their preparedness to teach, this paper reports on the content, pedagogy and learning they experienced in one segment of the unit with specific reference to the new history curriculum’s ‘Australia in a world history’ approach and the development of Asia literacy. The findings indicate that whilst pre-service teachers valued the opportunity to engage with learning experiences which enhanced their intercultural understanding and extended their pedagogical and content knowledge on campus, the nature of the final practicum in schools was also influential in shaping their preparedness to enter the profession.

Key Words: pre-service teachers; national history curriculum; Asia literacy; intercultural understanding

Introduction
Whilst pre-service teacher education programs provide a formative base from which to enter the profession, the next stage of the teaching journey in schools presents many challenges. As Feiman-Nemser (2001) puts it, new teachers simultaneously deal with two jobs: “they have to teach, and they have to learn to teach” (p. 26). And teaching is complex, for it relies on the integration of different kinds of knowledge and the constant application of skilled judgements. This paper draws from some of the findings of a small research project that aimed to document the perceptions of pre-service teachers in a final year secondary social science curriculum method unit as they reflect on their capacity to deal with curriculum change. Of these changes, the participants reflected on the forthcoming implementation of the first national history curriculum in Australia. In particular, the paper reports on pre-service teacher reflections on the content, pedagogy and learning they experienced in one segment of the unit with specific reference to the development of Asia literacy and the history curriculum’s selection of content for historical inquiry through an ‘Australia in a world history’ approach after the students had completed their final Field Studies placement in secondary schools.

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4 This paper utilises the term ‘national curriculum’ as the broad conceptualisation of what might be achieved in a single curriculum for all Australian States and Territories. The term ‘Australian Curriculum’ is used in this paper with reference to the most recent online (2013) version produced under the auspices of the statutory body currently charged with its development, the Australian Curriculum Assessment and Reporting Authority (ACARA). The Australian Curriculum: History V4.1 (ACARA, 2013) has just been released. Whilst the participants in the study referred to the first iteration of this online History curriculum, the particular features analysed in this document during the unit and referred to in the data remain the same in the latest 2013 version.
This fourth-year unit was designed and taught by the researcher on the understanding that when pre-service teachers engage in authentic, interactive learning experiences (Lombardi, 2007) which link theory with practice in their curriculum unit, they gradually acquire some skills that can be further developed and refined. In this way, the unit aimed at providing pre-service teachers with opportunities to connect with those core ideas and broad understandings of teaching and learning that will hopefully provide them with “traction” (Bransford, Darling-Hammond, & LePage, 2005, p. 3). Accordingly, it was assumed that such capacity building would enable pre-service teachers to apply those skills first acquired on campus to meet the specific curriculum reform agendas of the fluid policy environments they’ll negotiate during their careers. The paper is structured as follows. First, it provides an overview of the current policy environment with reference to the national curriculum agenda, the push for Asia literacy in Australian education, and the history curriculum’s emphasis on Australia in a world history approach. Second, it provides a brief overview of the study’s research design and methodology and third, the paper presents the pilot study’s findings and conclusions.

Globalisation and national curriculum reform in Australia

As with other governments in Organisation for Economic Cooperation and Development (OECD) countries, education policy reform aimed at aligning educational outcomes with the national interest, and delivered through a national curriculum, is one of the strategies by which the Australian government is responding to global shifts and increased regional interaction. It is in this context that the development of a national curriculum which also promotes greater consistency in education matters, was endorsed, with certain qualifications, by State and Territory ministers at the Ministerial Council for Education, Early Childhood Development and Youth Affairs (MCEECDYA) meeting in December, 2010. This was a considerable achievement, as under the Australian constitution, the States and Territories have autonomy over education, and this autonomy has prevented previous federal governments from succeeding in developing and implementing a national curriculum; furthermore, no other nation with a federal system of education has a national curriculum (Fensham, 2011).

The development of a national curriculum in Australia also reflects those policy decisions about what version of the nation’s past should be afforded historical significance, and what should be transmitted to future generations of young Australians. In this sense curriculum documents are indicative of the efforts of governments at particular times to secure the nation’s past in the present with an eye to securing the future (Attwood, 2005). History has special significance in debates about what should be emphasised in a national curriculum for while it might be about something that no longer exists, “in another sense, of course, the past is not dead at all; it exists through the ways in which we understand the past, and in the personal, cultural and intellectual inheritance we each have” (Portal, 1987, p. 13). As Rizvi and Lingard (2010) put it: “curriculum reform has been linked to the reconstruction of education as a central arm of national economic policy, as well as being central to the imagined community the nation wishes to construct through schooling” (p. 96).

The significance of the disciplines in the new curriculum

The introduction of the national curriculum presents a significant change in practice for the teaching of social sciences in Australian schools and for pre-service teacher education. This is because for many years history and geography were either elective offerings in secondary schools from Years 7 to 10, or subsumed as one of several strands in an integrated social sciences or social education subject in school curricula from the primary years to Year 10. One prominent Australian historian reflected that the teaching of history in Australia was now impoverished because of this integrated approach (Macintyre, 2010). The Future of Schooling in Australia (Council for the Australian Federation [CAF], 2007), was significant in foregrounding discipline-based learning. In this report, Premiers and Chief Ministers of the States and Territories made clear they would no longer support integrated approaches and that a new curriculum would focus on the “humanities and social sciences” (CAF, 2007, p. 2). The assumption was that learning could be secured across the disciplines if students acquired “deep expertise in one or more of the disciplines” (CAF, 2007, p. 19) and that this, in turn, would serve as the basis for cross-disciplinary learning.

This approach and other elements of the newly elected Labor government’s national education reform agenda for a world-class school system were formalised in the agreed policy document, the Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008), which informed the Australian curriculum project and all other national and State initiatives for schooling and post–school training. The first publication of this national curriculum process, the National Curriculum Development Paper (National Curriculum Board [NCB], 2008), articulated that discipline-based “knowledge, understandings and skills” would “assist young Australians in their future lives” (NCB, 2008, p. 2). Accordingly, the new Australian Curriculum incorporated a
The push for Asia literacy

The Melbourne Declaration also made clear that Asia literacy was now on the agenda for school education and that “engaging and building strong relationships with Asia” (MCEETYA, 2008, p. 4) is significant for the nation’s future. This national policy setting for Asia literacy in Australian schools has continued to evolve in ways that are important for pre-service, postgraduate and continuing teacher education. Whilst the push for Asia literacy is not new (Henderson, 2012; 2003), following the Melbourne Declaration, it has emerged as a mandated component in the Australian Curriculum as one of three CCPs, namely ‘Asia and Australia’s engagement with Asia’. Furthermore, intercultural understanding is identified as one of the seven GCs for young Australians. In this way, the CCP of Asia and Australia’s engagement with Asia is to be applied in all subjects and year levels whilst the GC of intercultural understanding is also identified for all students.

Meanwhile, the Australian Institute for Teaching and School Leadership (AITSL), a federal government funded body included Cultural literacy in the new Australian Standards for Teachers and School Leaders developed under AITSL’s auspices (AITSL, 2012) in Standard 1: ‘Knowing students and how they learn’ and an AITSL-commissioned report on the characteristics of the Asia literate teacher and school leader will be released in 2013. Most recently, the significance of Asian engagement for Australia and education’s role in capacity building students with Asia-related knowledge and skills received renewed attention following the release of the Australian Government’s report ‘Australia in the Asian Century’ (Commonwealth of Australia, 2012) in October 2012. This White Paper emphasises the fundamental importance of deeper Australian engagement with Asia across its broad range of policy objectives. In her Foreword to the paper, Prime Minister Gillard refers to the economic opportunities and strategic challenges that will accompany the rise of Asia whilst also noting the social and cultural benefits to be gained from broadening and deepening people-to-people links across the region. The major school objectives identified in the White Paper are to be achieved through inclusion in the new National School Improvement Plan, scheduled for implementation in 2014. These developments indicate the range of national policy settings that are reshaping schooling and teacher education in Australia.

The new history curriculum

The writers of The Australian Curriculum: History v1.4 (ACARA, 2013) delivered the Melbourne Declaration’s push for learning that equips students for the 21st century by situating an inquiry-based approach to Australian history in a world history context. Whilst a world history approach can encompass a range of theoretical approaches and is often considered to be a sub-discipline of history, in broad terms its usage infers a rejection of ‘the nation’ as the sole focus of historical analysis. According to one of the writers of the framing paper for this new curriculum, the decision to embrace a world history perspective was made with the view that students would be better placed to understand Australian history if they appreciate “the long history of other places and other peoples” (Macintyre, 2009, p. 11). Currently, the national history curriculum organises significant content in two year bands from a broadly thematic expanding horizons and semi-chronological approach to Australian history in the early and primary years, to a more overtly chronological focus from Years 7-10. This chronological focus is designed so that students will not encounter the repetition of topics for investigation. Key questions are posed at each year level to foreground inquiry approaches to those topics considered to be significant.

Students study the history of the modern world and Australia from 1918 to the present, with an emphasis on Australia in its global context in Year 10. However, of the topics identified for emphasis there is hardly any opportunity for students to investigate the history of China or India after 1918 (which effectively prevents Australian students from investigating the re-emergence of China and India as significant world powers), as well as the recent histories of some other significant countries in the Asian region such as Indonesia, Malaysia and Vietnam (amongst others). This is despite the fact that the Melbourne Declaration foregrounds the Asian Century noting that “India, China and other Asian nations are growing and their influence on the world is increasing” (MCEETYA, 2008, p. 4). Indeed, international shifts are forthcoming that will have strategic, economic and cultural ramifications for Australia. According to Wesley (2011a), this dynamic will produce a world that is unfamiliar and challenging. For not only will China and India emerge as dynamic and powerful
world economies, so too will Indonesia and Vietnam. Furthermore, nations such as India, Indonesia and Vietnam, will look for ways to buffer and constrain Chinese hegemony in the Asian region through alliances that include the United States. Wesley makes a cogent argument for how underprepared Australia is for this complex regional and international environment despite the fact that we have “done extremely well out of the rise of Asia” (Wesley, 2011b, p. 6) as in the past two decades the Australian economy has tripled in size and the average citizen’s wealth almost doubled. Yet during the decades in which Australia internationalised, this shift was not reflected in the school curriculum and in pre-service teacher education. As Wesley puts it, “the intellectual infrastructure we need to understand and converse with the societies that have become so important to us” (p. 6) has not been constructed. The development of the first national curriculum is indicative of recent policy efforts to reshape schooling and teacher education in Australia. Given that teachers interpret and implement curriculum documents, they are, in fact, “integral” to how any curriculum is “constructed and enacted in classrooms” (Clandinin & Connelly 1992, p. 363). The next part of the paper briefly refers to the literature on teachers’ knowledge that informed the pilot study prior to summarising its research design and methodology.

Knowledge for teaching

The literature on knowledge for teaching suggests the following as key elements: knowledge about the content, knowledge of the curriculum, knowledge about how to teach, knowledge about learning and learners, knowledge about self, and knowledge of educational contexts. With reference to Shulman’s (1986) seminal conceptualisation of three broad areas of subject-matter knowledge as content knowledge, pedagogical content knowledge (PCK) and curricular knowledge, pedagogical content knowledge is particularly useful for articulating the “amalgam of content and pedagogy that is uniquely the providence of teachers” (Shulman, 1987, p. 8). Of course, such knowledge continues to develop as teachers work in different school settings. Ellis (2007) addresses this and argues that subject knowledge is relational to its context for it is “complex, systematic and emergent in practice” (p. 459). In this way Ellis extends Shulman’s schema further to contend that subject knowledge is “a form of collective knowledge” (Ellis, 2007, p. 458). Moreover, Ellis argues that pre-service teachers lack distinctive categories of knowledge and claims that their subject knowledge, namely “the amount and organisation of knowledge per se in the mind of the teacher” (Shulman, 1986, p. 9), develops as pre-service teacher experience and respond to “collective processes” in the school environment and classroom (Ellis, 2007, p. 459).

The research design and methodology

This paper draws on a small interpretative pilot study. This form of qualitative research was informed by constructivist approaches to grounded theory (Charmaz, 2000; 2006) for its methodological emphasis in analysing data and the study’s design included a general questionnaire and small focus groups. Data was collected in two phases. First, following the granting of Ethical Clearance, after conclusion of the unit and finalisation of results, students were invited by e-mail to participate in the project by providing anonymous answers to a written questionnaire and 25 (n=25) volunteered to complete the questionnaire. Second, students were invited by e-mail to participate in semi-structured interviews in small focus group with the researcher in the following semester. Fourteen students (n=14) participated in three focus groups. The questionnaire aimed at collecting contextual information such as educational background, age, gender, field study schools, subjects taught on field studies and itemised professional development experiences. Data were then collected through semi-structured interviews in focus groups in which participants were invited to share reflections on the following: links between the history units they’d studied in their undergraduate course; the fourth year social sciences curriculum unit; teaching experiences in final Field Studies placement; knowledge and understanding about what it means to be Asia literate and how this might contribute to intercultural understanding together with their perceptions about the requirements of the new history curriculum. The focus groups were tape-recorded and transcribed verbatim. An inductive approach was used to analyse transcripts and identify and define substantive themes as they emerged from the data. Grounded theory principles guided this process (Glaser & Strauss, 1967; Corbin & Strauss, 1990) in two phases. First, vertical analysis (Miles & Huberman, 1994) was applied to each of the respondent’s interviews separately. Second, a horizontal, comparative analysis occurred in which constant comparative analysis (Glaser & Strauss, 1967) was applied. As per constructivist design, the focus on the meanings ascribed by the participants provided the overarching thrust of analysis (Charmaz, 2000; 2006). Participant anonymity is provided in this paper by allocating letters to each participant, namely from A to N. In the following section, particular emphasis is placed on the focus groups as the data generated from the discussions provided insights into meaning attributed to their knowledge. However, it must be noted that as this was a small pilot study, the author does not make claims for the representativeness of the
findings that follow. As such, it is small-scale localised research that responds to the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA, 2007) report which argued for a longitudinal study to follow the experiences of cohorts of students “from selection into courses, through pre-service preparation and into the first five years of teaching” (p. 10).

Findings

Analysis of the Focus Group data indicated that all 14 participants expressed some concern about dealing with the impending curriculum change prompted by the staged implementation of the national curriculum at the same time as they were learning “to teach” (Feiman-Nemser, 2001, p. 26). All participants also indicated that they were struggling with the subject matter and how to deal the “amalgam of content and pedagogy” (Shulman, 1987, p. 8) during their Field Studies placements. However, all the participants also acknowledged that they were building on what they’d learnt from their curriculum unit. This constant juxtaposition of subject knowledge as relational to the demands of the final Field Studies placement reflected, in various ways, Ellis’s (2007) descriptor of subject knowledge as “complex, systematic and emergent in practice” (p. 459). So whilst participants expressed confidence in their fundamental understandings, they still sought practical skills and guidance in applying this knowledge to practice (Lempp et al., 2004). Furthermore, as this was their last experience of teaching as ‘student teachers’ prior to graduation and joining the profession, the participants placed considerable importance on this placement. Of the substantive themes that emerged from the analysis of meanings ascribed by the participants during the focus groups in relation to their knowledge of themselves on the cusp of entering the profession, three are briefly discussed in this paper. That is, pre-service teachers conceptualised themselves with reference to the forthcoming implementation of new history curriculum and the development of Asia literacy as knowledge apprentices; knowledge brokers and knowledge facilitators.

Knowledge apprentices: “it was like I knew a lot but …”

Whilst all the participants indicated that they had some degree of pedagogical content knowledge, they looked to their teachers on Field Studies for guidance in ways similar to apprentices learning in the workplace. One participant who completed Field Studies in large secondary school reflected: “I was required to teach across two curriculum areas, and while I knew enough on a daily basis, I leant on my supervising teachers for help at times as they knew so much more. I hope I get a good Head of Department (HOD) to guide me when I get my first teaching job next year” (B). Another participant noted that she needed assistance in fine tuning the inquiry questions she devised for student activities: “I noticed how quick my supervisor was to edit the questions that I took ages to draft. It was like I knew a lot but needed to learn some more from someone with experience” (J). Participant (I) commented on how he needed to adjust what he’d planned as he was always trying to teach “too much” content in a lesson. He valued the opportunity to “de-brief” with his supervisor in terms of devising more realistic lesson aims and objectives. “I kept overestimating the time required for these kids to learn and, largely as a result of his feedback, I gradually got better at this” (I). One of participants referred to the associated notion of mentoring on his Field Studies placement, “I was fortunate my school had an excellent pre-service teacher mentoring program and I had great support from my school-based mentors during this final prac - it made a big difference in terms of being ready for next year” (K). Similarly, two other beginning teachers stressed the importance of school-based programs in addition to what they’d understood from their university studies, and emphasised the value of working with more experienced teachers, such as the HOD. As one of these participants noted “I think it’s really important to have these things [particular teaching strategies] modelled by a HOD or leading teacher in your curriculum area. Because although I got a lot out of our unit, I don’t think you can really take it all at uni, and you have to see how real teachers do this and try it out in the classroom yourself” (L). This reflects the finding of Pietsch and Williamson (2010) that in transitioning to practice, beginning teachers are largely concerned with transferring and integrating their content and pedagogical knowledge into practice. However, the data suggested that other factors were also significant, for whilst anxious about refining their practice, the participants also shared their reflections on what new knowledge they could also offer.

Knowledge brokers: “I had something to offer …”

All 14 participants drew meaning from the fact that they were often more familiar with the new curriculum documents than the busy teachers in their Field Studies schools. The participants indicated a sense of empowerment in terms of their willingness to embrace the future changes offered by the forthcoming implementation of the new history curriculum. As one participant put it “I was able to bring new and really up to date information about the national history curriculum and ideas about teaching to teachers in the staff room and I got this great sense of confirmation about myself as a ‘real’ teacher” (M). Participant (D) noted that as the new history curriculum was scheduled for implementation in 2013, the teachers in his school were still teaching from
an integrated approach termed ‘Essential Learnings’, and several teachers in his staffroom seemed disinterested in the new curriculum. “They kept telling me not to worry about all this talk about engaging with Asia and that the new history curriculum wouldn’t be too much different anyway. At first I was disappointed in this prac as I was hoping to learn from the experienced teachers about how they’d interpret the new curriculum so I’d be better prepared when I start teaching. But then I thought that I’d be OK as I actually knew more about the new history curriculum than they did” (D). Meanwhile the history teachers in Participant F’s staffroom knew so little about the new curriculum they asked her to share her university work and treated her as the expert. “I was surprised as they were experienced teachers and I just didn’t know as much history as they did, but I had something to offer them” (F). Similarly, other participants commented on sharing their resources and ideas for activities with teachers. “I was amazed by how my supervisor taught the same way every lesson and I asked him if I could try out some of the activities we’d done in our tutorials with the kids on intercultural understanding. He was so pleased with what I did he encouraged me to teach some of the other activities to his class” (E). In participant N’s regional school, all the teachers were unaware of the curriculum’s Australian history in a world history context, “I had to explain it to them and I actually talked them through the curriculum’s approach.”

Knowledge facilitators: “I was the one taking the kids forward …”

The participants all reflected on their positioning as agents of change in the implementation of the new curriculum. Two participants, (A) and (G), were placed in the same staff room in a large metropolitan secondary school that was a ‘trial’ school for the implementation of the new curriculum. Accordingly, staff members were teaching a ‘draft’ version of the history curriculum eighteen months before it was scheduled for general implementation in 2013. There was an emphasis on fostering Asia literacy across the curriculum. “The workshops we did on developing Asia literacy and intercultural understanding at uni were invaluable. I drew on this stuff and worked really hard and I loved how I was the one taking the kids forward in this online environment about another culture” (G). Participant (A), who was also at this school, stressed the impact of the school’s philosophy and that she was enabled to take risks in how she structured learning experiences. “It was a great place to teach as almost all the teachers were committed to the international focus and I was encouraged to experiment with activities aimed at developing intercultural understanding” (A). In this sense, this participant’s reflections about herself as a knowledge facilitator also suggest some aspects of the ways in which pre-service teachers experience and respond to “collective processes” in the school environment and classroom (Ellis, 2007, p. 459). Another participant commented on how appreciative his supervising teachers were of his web skills. “I was asked to revamp the Australian history web quests and fix up the online learning activities for the students” (E). Six participants specifically referred to the value of their understandings about inquiry-based learning, interpreting syllabuses and planning units of work gained from the final year social science curriculum unit. One participant referred to this as having, “a good foundation in understanding how most curriculum documents and syllabuses could be interpreted” (F). Another participant reflected that he “knew how to unpack curriculum documents for the classroom” (B). Four participants specifically referred to their knowledge changing and developing as they taught, reflecting the complexity of that “amalgam of content and pedagogy that is uniquely the providence of teachers” (Shulman, 1987, p. 8). For example, whilst one participant struggled at first to deal with pedagogical content knowledge in social and cultural terms, as she engaged with the students and became more knowledgeable about the school environment, her confidence grew to the point what she embraced new skills. “I come from a European middle class background and I’ve not had to deal with what it’s like to be discriminated against because my parents are refugees and poor. First I was anxious in selecting content for my students for this topic and worried about teaching it in engaging ways. But I’ve learnt so much about other cultural perspectives from the students I actually teach. I’m determined to keep this awareness and make a difference to kids’ lives when I get to my own classes next year so I can change things” (C).

Conclusion

Space permits only limited insights into the analysis of the range of participant responses. Nevertheless, the findings are similar to other studies which indicate that a university-based unit can provide strong foundational understandings and skills (Norman & Feiman-Nemser, 2005). Whilst limited, the data aligns with other Australian research which indicates a need for beginning teachers’ curriculum knowledge (Cochran-Smith, 2005) to continue to be developed, together with an induction into school culture (Ewing & Langley-Smith, 2003). Furthermore, the findings indicate that pre-service teachers on the cusp of entering the profession have much to offer in terms of bringing new approaches and knowledge to the profession, for all teachers must continually construct new ideas, skills and practices throughout their careers (Darling-Hammond & Bransford, 2005). The current range of national policy settings reshaping schooling and teacher education in Australia suggest that this will increasingly significant as it embraces the Asian Century.
References


The Long Way Round: Graduate Entry Pre-service Teachers’ Pathways into Teaching

Denise Beutel
School of Cultural and Professional Learning
Queensland University of Technology, Australia
d.beutel@qut.edu.au

Leanne Crosswell
School of Cultural and Professional Learning
Queensland University of Technology, Australia
l2.crosswell@qut.edu.au

Abstract

Recent reports into teacher education have challenged how universities prepare and support pre-service teachers in their transition to teaching. In particular, criticisms have been directed towards graduate entry programs in which pre-service teachers undertake shorter formal teacher preparation programs compared with their four-year Bachelor of Education counterparts. It may be argued however that graduate entry pre-service teachers have the potential to transform and value add to the teaching profession as they bring with them a range of careers and wealth of experiences often beyond those of students in the Bachelor programs. The route to teaching of graduate entry teachers is often convoluted. However, there is a need to develop a greater understanding of this cohort of teachers as they are part of a growing international demographic. This paper reports on a research study that identified the profiles of a group of graduate entry pre-service teachers and reveals their reasons for entering teaching. Findings from this qualitative study indicate, for this group of teachers at least, that reasons for entering teaching fall under two categories: lifestyle and altruistic.

Keywords: teacher education; career change; career switch;

Introduction

Internationally, teacher education programs have been under intense scrutiny over recent years. Reviews such as the Teaching Scotland’s Future (Donaldson, 2010), Australia’s Top of the Class report (House of Representatives Standing Committee on Education and Vocational Training, 2007) and, more specific to the context of this paper, Queensland’s Review of Teacher Education and School Induction (Caldwell & Sutton, 2010) have highlighted the need for changes to current approaches to teacher education. In Australia, while there are alternate pathways into teaching, the two main entries are through 4 year undergraduate Bachelor of Education programs and through shorter graduate entry programs such as the Graduate Diploma in Education, the focus of this paper. While four-year undergraduate teacher education programs have been the key focus of the reviews of teacher education, graduate entry teacher education programs have not escaped attention.

A key criticism of the graduate entry teacher education programs has focused on their short duration suggesting that they provide limited opportunities for more comprehensive development of pedagogical skills and understanding of contemporary school contexts (Skilbeck, & Connell, 2006). However, there is evidence to suggest that the graduates of these programs enter teaching with personal qualities and attributes likely to transform the profession (Williams & Forgasz, 2009). It is argued that graduates of graduate entry teacher education programs bring to the teaching profession a broader base of knowledge, experience, expertise and maturity. In many cases, these graduate entry teachers have taken the ‘long way round’ into teaching in that they have had a broad range of prior experiences and life skills, which often include parenthood and work with young people, as well as experience in previous professions and expectations from other work places. These experiences add a depth of understanding and rich skill set not often found in graduates from the four year programs (Skilbeck, & Connell, 2006). Further, teachers who enter the profession through graduate entry
pathways, have attributes such as increased levels of motivation and a thirst for ongoing professional learning that are essentials of quality teaching (Williams & Forgasz, 2009) while another perceived benefit of graduate entry teachers is the exposure of school students to a broader cross-section of the community represented in the profession.

As with all pre-service teachers, Graduate Diploma in Education candidates bring with them well-entrenched, and often unexamined, assumptions about teaching and learning (Darling-Hammond, 2006). It is argued that prior careers and related experiences contribute to these assumptions and to their ability to transition well to the profession. If career change professionals to teaching are perceived as having the potential to transform the profession, a better understanding of their backgrounds and the reasons behind their decisions to enter teaching is needed in order to assist in their preparation and transition to practice. In this paper we seek to identify the reasons that brought a group of graduate entry pre-service teachers to teaching and reveal how these motives may impact on their classroom practices.

Context

The Graduate Diploma in Education course at a metropolitan university in eastern Australia provides the context for this study. The Graduate Diploma in Education is a graduate entry teacher education program designed to prepare students who already hold university degrees outside of the field of education to gain a teaching qualification. Currently in Australia, graduate entry teacher education programs comprise one year of full-time study equivalent plus field experience in schools. However, it must be noted that the new national accreditation body for teacher registration and teacher education program accreditation in Australia, the Australian Institute of Teaching and School Leadership (AITSL) has now called for graduate entry teacher education preparation programs, submitted for accreditation or re-accreditation, to comprise at least two years of full-time equivalent studies in education (Australian Institute of Teaching and School Leadership, 2011).

Literature

Graduate entry teacher education students are undertaking a career ‘switch’. Career change teachers or ‘second career’ teachers (Richardson & Watt, 2005) include people who are leaving occupations and professions unrelated to education, entering teacher education programs and becoming teachers. Characteristics of career change teachers include that they are older than mid twenties in age, possessing substantial life experiences resulting from previous careers and raising children which enables them to bring qualities such as maturity and expertise to teaching (Tigchelaar, Brouwer & Korthagen, 2008). While career change teachers are thought to bring competencies such as problem solving abilities, communication skills, multitasking capabilities, highly developed work ethic, analytic thinking and expert knowledge to teaching the transfer of these competencies should not be seen as unproblematic (Trent & Gao, 2009). For example, some skills that may have been useful in previous careers may not be the same skills that are requisite to success in teaching.

While many people choose to switch careers to teaching in an effort to undertake meaningful work and to make a difference within schools and in society in general (Lerner & Kittleman, 2002) other factors include social status, career fit, prior considerations, financial reward and time for family (Richardson & Watt, 2005). Some research studies have found that reasons for entering teaching fall into three broad categories: altruistic, extrinsic and intrinsic (Anthony & Ord, 2008), with intrinsic and altruistic motives dominating. However, in a longitudinal study involving over 510 graduating teachers who completed a graduate entry primary or secondary program, Watt, Richardson and Pietsch (2009) identified significant constructs involved in choosing teaching outside these categories. For example, beliefs related to teaching ability, personal utility values (e.g. job security and time for family) and social utility values (e.g. making a social contribution and want to work with children) and positive prior experiences of teaching and learning contributed also to teaching as a career choice. The notion of a ‘calling to teach’ has been identified as a prominent altruistic reason for changing careers to teaching (Williams & Forgasz, 2009). In other words, many career change teachers choose teaching for the ‘right’ reasons, rather than for extrinsic motives, while more pragmatic considerations such as lifestyle also feature (Williams & Forgasz, 2009). Extrinsic motives for entering teaching may include the desire to receive praise or some external reward. Bruinsma and Jansen (2010) proposed that extrinsic motives may be adaptive or maladaptive. Adaptive motives facilitate deep and lasting engagement in the profession while maladaptive motives facilitate disengagement or shallow engagement in the profession. An example of an extrinsic adaptive motive is when a person expresses desire to become a teacher because of good career opportunities whereas a maladaptive motive would be when someone comes into a teacher education program merely because they could not get into their first and preferred choice of study. Pre-service teachers with maladaptive motives have
more negative views of their teacher preparation programs and of the length of time they see themselves remaining in the profession (Bruinsma & Jansen, 2010). Thus it is useful to have an awareness and understanding of the prior experiences that graduate entry teacher education students bring with them to better equip them for the transition to, and realities of, teaching. This study explores the prior experiences and motivating factors of one group of graduate entry teacher education students from one Australian university.

**Methods**

Data in this qualitative study were drawn from semi-structured interviews with 15 graduate entry preservice teacher education students enrolled in the Graduate Diploma in Education course at a metropolitan university in eastern Australia. The data set includes nine females and five males with ages ranging from mid twenties to over fifty. The purpose of the interviews was to reveal the factors that influenced this group of graduate entry preservice teacher education students to enter teaching. As noted earlier, these pre-service teacher education students come to the Graduate Diploma in Education course with prior degrees together with a range of previous careers and experiences.

Interviews with the Graduate Diploma pre-service teachers were audio-recorded and transcribed later for data analysis. To meet the university's ethics requirements, the interviews were conducted by a visiting academic who had no previous interaction with the pre-service teachers and was not involved in teaching into the Graduate Diploma in Education programs.

The interview transcripts were hand coded to allow the researchers to become familiar with the data. The coding process allowed for themes to emerge from the data. Then, using a process of constant comparison, the data were re-coded (where necessary) and grouped as similarities and differences in the data emerged (Miles & Huberman, 1994). Emergent themes were compared and checked back to the original interview transcripts.

**Results and Discussion**

The 15 graduate entry teacher education students in this study revealed a wide variety of initial degrees and previous work experiences as shown in Table 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Previous qualifications</th>
<th>Previous careers</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Bachelor of Arts</td>
<td>Travel industry&lt;br&gt;Teaching English Overseas&lt;br&gt;Journalist&lt;br&gt;Mining industry</td>
</tr>
<tr>
<td>3</td>
<td>Creative Industries</td>
<td>Hospitality industry&lt;br&gt;Performer&lt;br&gt;Manager – banks, telecommunications</td>
</tr>
<tr>
<td>1</td>
<td>Law</td>
<td>Lawyer</td>
</tr>
<tr>
<td>3</td>
<td>Commerce/Business</td>
<td>Australian Tax Office&lt;br&gt;Manager – telecommunications, office</td>
</tr>
<tr>
<td>1</td>
<td>Music</td>
<td>Music teacher</td>
</tr>
<tr>
<td>2</td>
<td>Human Movement</td>
<td>Work cover case manager&lt;br&gt;Manager - call centre, fast food store&lt;br&gt;Sports coach&lt;br&gt;Exercise physiologist</td>
</tr>
<tr>
<td>1</td>
<td>Political Science</td>
<td>Teaching English overseas</td>
</tr>
</tbody>
</table>

While previous degrees spanned a diverse range of fields, within this specific group of participants 53% had degrees in the arts/creative industry fields. It is also important to note that a degree in a certain field did not always lead to careers connected to that area and 60% of the participants had indicated work experience in areas that were not directly related to their initial degrees. Thus our participants undertook their teaching programs from a diverse range of career paths and arrived with a wide range of skills sets. These various skills and knowledge from these prior professions may contribute to smooth transitions to some teaching contexts. For
example, teaching and coaching roles would obviously assist with planning and implementing learning experiences in the classroom as well as building relationships with students. Other experiences, such as working as a manager would foster skills useful to effective teachers such as social and leadership skills. Participant interviews revealed that they understood the current role of teacher to be complex and time intensive. The range of factors as to why they had chosen to undertake the Graduate Diploma in Education included, seeking more meaningful work, having of teaching experience already (such as teaching English, swimming or music) and wanting formal qualifications, having financial security and looking for a profession that is family friendly.

Two broad categories emerged from the data analysis of the interview transcripts. These categories are lifestyle and teaching seen as a vocational ‘calling’. Elements from within these categories ranged from a sense of idealism to more pragmatic reasons for entering teaching. Teaching as a lifestyle choice ensured financial security an issue raised as high importance to some participants. For example, one interviewee stated that “In the global financial crisis my whole department almost got eliminated with a stroke of the pen…….I was approaching my forties and I’m not married. I have a mortgage. I wanted to have a trade to fall back onto”. (ST_ 1, 19-23). For others participants in the study, the lifestyle choice was the freedom that teaching provided. One pre-service teacher perceived that, having a teaching qualification, would allow her to live in different parts of Australia while for another teaching was viewed as a family-friendly profession and this perception was instrumental in the decision to become a teacher, “When I became a mother and I separated from his (my son’s) father I was in a situation where I had to think about how I was going to provide the kind of lifestyle for him where I could be involved in his life and certainly because of the holidays” (ST_14, 17-20). Having a familiarity with teaching as a lifestyle, through family members who were teachers (or had worked in schools), made teaching appear to be an attractive career choice. For instance, “I think I resisted doing teaching for a long time because I come from a teaching family, both my parent are teachers, two of my uncles are teachers….so I was familiar with it’ (ST_14, 16-21) and “my husband is a teacher and I have three children so I thought that it would be a good family occupation to be involved with. (ST_11, 22-23)

For some, altruistic reasons were behind their decisions to enter teaching. Social justice and social change were reasons provided by a few participants for becoming teachers, “I’m interested in Social Justice and that’s why I got into law but there are more opportunities to do that in education.” (ST_5, 1). And from another participant: “[Teaching] is something you can be proud of. It’s something that can affect social change for the better”(ST_2, 3).

Other altruistic reasons for becoming a teacher emerged from participants’ personal experiences of school and schooling. One particular participant’s initial schooling in a country primary school was very positive, ‘I loved school, primary school’ (ST12, 8-9). However, her next experience of schooling was remarkably different, ‘And then I had to go to a big private school in Brisbane and that was very different…I worked hard but it was an awful school (ST12, 8-9). She describes how it was several teachers who took her under their wing and ‘completely changed her life’. These experiences have led to her own altruistic desire to become a teacher and be a positive and supportive influence in students lives.

Some participants perceived teaching as a calling. A vocation that they wanted to pursue for some time, but for various reasons had not until this point in time. Becoming a teacher for these participants was something that they had always known they would do, but had needed to wait til their lives and circumstances allowed them to pursue this course of action,“I have always wanted to do teaching, always wanted to do it…and I’ve just got two small children now so it was good timing for me to do the teaching” (ST_12, 22-24) and “I come from a teaching family…..and I suppose it was just the right time (for me) to start teaching” (ST_14, 16-21) . The group who discussed teaching as a vocational calling had taken the ‘long way round’ to enter the teaching profession, while always being aware that it was an profession that they wanted to pursue at some stage of their life.

**Conclusion**

The findings of this study have revealed that career switchers to teaching emerge from a variety of initial undergraduate degrees and draw from a wide range of previous career experiences. Importantly, this group understood the complexities and challenges of being a classroom teacher in the current context. Thus, they understood the demands and rigours of teaching with its comparatively low pay scale and still considered the alternative rewards associated with teaching to be worthy of career switching. While pathways to teaching for many of this group of preservice teachers were quite convoluted, it was apparent also that there was a richness of experiences that would value-add to the teaching profession; such as, maturity, strong interpersonal skills and
high motivation to teaching (Anthony & Ord, 2008). Certainly, how to best capitalise on these rich previous experiences in teacher education programs warrants further investigation to ensure that these strengths are not diluted. Further, teacher education programs need to be rethought in their structure and delivery in order to meet the needs of this growing demographic group of older teaching entrants. For these preservice teachers who had taken the long way round to enter the teaching profession it is the perceived alternative rewards of teaching that attracted them to the profession. We ponder if the actual lived experience of teaching where the constant tension between the day to day demands of teaching and these perceived rewards will live up to expectations for this group.

References


Abstract
SERVQUAL service quality dimensions had been used in various industries. However, not many used this service quality dimensions in the education industries, furthermore in an open and distance learning (ODL). Open University Malaysia (OUM) is one of the first and leading universities in ODL. Faculty of Business and Management (FBM) is one of the faculties in Open University Malaysia (OUM) and this faculty offered a vast number of programmes with a high number of students. Therefore the perception of students in the faculty’s service quality is vital to the university and ensuring its sustainability in the industry. This paper aims to obtain information on customers’ perception towards service provided by FBM. This study also tried to find out which of the five SERVQUAL service quality dimensions is most and least important perceived by the students. A total of 264 students are given a set of questionnaire in the year 2010. The results of this paper can be used as information to the faculty to improve its services to their students and it can also be used as a means to set strategies in the administrative such as marketing for their education services. A dynamic strategies need to be implemented because perception level of customers changes from time to time.

Keywords: Service quality, SERVQUAL, ODL

Introduction
According to Philip Crosby, a pioneer in quality thinking, in his well-respected book “Quality is Free” concretely quality, whether in manufacturing or services, is “doing things right at the first time. Quality means conformance not elegance”. Crosby states quite clearly: “quality is not free, it is an honest-to-everything profit maker”. While, Berry at.al (1989) suggested, “By any definition, service is a process which involves performances”.

Parasuraman et.al (1985) later presented an extended model of service quality, which shows the various organizational constructs and their relationships to the service quality gaps. The extended model further elaborates that service quality or gap 5 is actually influenced by five dimensions of service performance. These dimensions are tangibles, reliability, responsiveness, assurance and empathy, which are later adopted in this study.

Service quality plays a very important role in today’s competitive business world. The concept of measuring and managing service quality has caught the attention of many researchers and employers in various fields. Education is a service industry where the needed knowledge is provided and delivered to its customers, in this case the learners. Open University Malaysia is one of the leading open and distance (ODL) universities in Malaysia. This paper serves to obtain information on customers’ (learners) towards service provided by Open University Malaysia. In this study, the dimensions used in studying customers’ perception of service tendered on OUM are as follows:
<table>
<thead>
<tr>
<th>SERVQUAL service quality dimensions</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>Termed as the degree of being able to depend with confidence when using particular goods and services. This included the fulfillment of promises within the specified time, performing the service right the first time and insisting on error free records.</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Encompassed the ability of the faculty to inform customers exactly when services will be performed. It involves the ability to provide prompt service besides the willingness to assist customers.</td>
</tr>
<tr>
<td>Assurance</td>
<td>Assurance is the ability of the service provider to instill a certain level of confidence in the customer. Besides confidence, assurance also means making the customer feel safe in their transactions and that the service provided are being consistently courteous with them.</td>
</tr>
<tr>
<td>Empathy</td>
<td>Empathy included such traits like the individual attention given to customers, operation hours which is convenience to customers and understanding the specific needs of their customers.</td>
</tr>
<tr>
<td>Tangibility</td>
<td>Described the situation or materials that are perceptible by touch eg. Physical facilities in the working environment, equipment, materials associated with service such as pamphlets or statements and the appearance of the employees that provides the services.</td>
</tr>
</tbody>
</table>

The result of this study would probably be accurate and applicable only to customers of OUM which have similarities in the services. Furthermore, only the Faculty of Business and Management (FBM) are studied in this paper.

**The purpose of the study**

Education is one of the key players in most countries including Malaysia. Malaysia put a heavy weightage on education because education is listed in one of the thrust in the 10th Malaysia Plan (2010-2015). Lifelong learning is one of the subjects in discussions among academicians and practitioners these days. Knowledge is one of the most valuable assets to mankind; it can be justified as human capital is the key transformation to any organization and country. Education demand is increasing every year, hence measuring and assessing service quality for ODL is vital.

Although OUM provides extensive and comprehensive student learning support services, which comprises of self-managed learning, face-to-face tutorials and online interactive platform for students to share knowledge and information to its learners, however there are still many dissatisfactions voiced out by these learners. Hence, this study would like to study and identify which of the SERVQUAL service quality dimensions is heavily looked upon to by these adult learners in the FBM. FBM is chosen as the studied faculty because (i) FBM offers a total of 10 degrees and diploma in total; (ii) a relatively high number of students; and (iii) FBM offers university compulsory to all students in OUM, eg. Entrepreneurship, Professional Ethics courses etc.

The purpose of this research is as follows:

- To identify the most and least important service dimensions as perceived by customers (students)
- To study if there are significant differences between age and level of income in terms of how they perceive the services are offered.
- To study whether the courtesy of FBM staffs, the time taken for processing applications affect the overall service quality.

**Literature review**

Webster (1972) defined perception as the ability of a person to use his mind to realize his feelings. Perception is a basis of obtaining knowledge and view from the realization. Perception is the realization of a person towards object, concepts, quality through senses (Hilgard 1973). Doby’s (1966) opinion is that perception is a complex interaction process, whereby it not only contains stimulation and receptor function but also motivation and past
experience. There are some researchers who suggested that perception is an event over time. Hentschel et al (1986) supported this idea and added that perception is not an instantaneous reaction to an outside stimulation. According to them, perception are events of awareness that are closely related with the observes private world of memories and emotional experiences.

Johnston (1985) stated that service quality is a vital element of customer service and is among the most difficult to design and control. Designing service quality calls for the need for all the attributes to be identified. The service levels specified are measurable and can be compared against a set of specified targets. The customer, in his perspective, views the measure of service of service quality as customer satisfaction. Parasuraman et.al (1985) developed a service quality model that indicated a series of five gaps occurring in organizations and a gap accruing on the customers’ side. The four service provider gaps can interrupt the delivery of service that customers perceive to be of high quality. Refer to Figure 3. The gap stated in the model is as follows:

<table>
<thead>
<tr>
<th>GAP</th>
<th>DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap 1</td>
<td>Difference between customers’ expectation and management perceptions of the customers’ perceptions.</td>
</tr>
<tr>
<td>Gap 2</td>
<td>Difference between management perception of customers’ expectations and service quality specifications.</td>
</tr>
<tr>
<td>Gap 3</td>
<td>Difference between service quality specifications and the service actually delivered.</td>
</tr>
<tr>
<td>Gap 4</td>
<td>Difference between service delivery and what id communicated about the service to customers.</td>
</tr>
<tr>
<td>Gap 5</td>
<td>Difference between customers expectation and customer perception of service.</td>
</tr>
</tbody>
</table>

Parasuraman et al (1985) later presented an extended model of service quality, which shows the various organizational constructs and their relationships to the service quality gaps. The extended model further elaborates that service quality or gap 5 is actually influenced by five dimensions of service performance. These dimensions are tangibles, reliability, responsiveness, assurance and empathy.

**Conceptual framework**

A total of 264 students were asked to rate whether the service quality provided by Faculty of Business and Management, OUM in year 2010. This study adopted Parasuraman et al (1985) SERVQUAL for the measurement of this study. The SERVQUAL model measured the expectations-perception gap scores along five dimensions namely reliability, responsiveness, assurance, empathy and tangibles. A total of 16-statements/questions with a five-scaled Likert across the five SERVQUAL dimensions of service quality with three statements each for of the five SERVQUAL dimensions and one as an overall question on service quality provided to the respondents. The details of the five (5) scale Likert scale are as follows:

<table>
<thead>
<tr>
<th>Likert Scale</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale 1-2</td>
<td>Below expectation</td>
</tr>
<tr>
<td>Scale 3</td>
<td>Meet expectation</td>
</tr>
<tr>
<td>Scale 4-5</td>
<td>Above expectation</td>
</tr>
</tbody>
</table>

The questions in the SERVQUAL service quality dimensions are as following:

**TANGIBLES**

<table>
<thead>
<tr>
<th>No. Question</th>
<th>Question in the questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q13</td>
<td>The location of the learning centre is convenient.</td>
</tr>
<tr>
<td>Q14</td>
<td>PPW/T centres provides quality equipment in the classroom</td>
</tr>
<tr>
<td>Q15</td>
<td>The course materials are of good quality, easy and convenient to handle - easy to carry around.</td>
</tr>
</tbody>
</table>

**RESPONSIVENESS**

<table>
<thead>
<tr>
<th>No. Question</th>
<th>Question in the questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4</td>
<td>The feedback and results are received on time</td>
</tr>
<tr>
<td>Q5</td>
<td>The response is prompt for my queries regarding the faculty programmes</td>
</tr>
<tr>
<td>Q6</td>
<td>Tutors reply the questions posted in the forum promptly</td>
</tr>
</tbody>
</table>
Findings and discussions

In this study, 53% were females and 47% were males. The number of respondents is 140 and 124 respectively. Refer to Table 1 below:

Table 1: Distribution of respondents by gender.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of persons</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>140</td>
<td>53.0</td>
</tr>
<tr>
<td>Male</td>
<td>124</td>
<td>47.0</td>
</tr>
<tr>
<td>Total</td>
<td>264</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 2: Distribution of Respondents by Income Level

<table>
<thead>
<tr>
<th>Income Group</th>
<th>Number of respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than RM 8999</td>
<td>37</td>
<td>12.9</td>
</tr>
<tr>
<td>Between RM 9000 to RM 28999</td>
<td>79</td>
<td>29.9</td>
</tr>
<tr>
<td>Between RM 29000 to RM 48999</td>
<td>57</td>
<td>21.6</td>
</tr>
<tr>
<td>More than RM 49000</td>
<td>27</td>
<td>10.2</td>
</tr>
<tr>
<td>Not earning</td>
<td>67</td>
<td>25.4</td>
</tr>
<tr>
<td>Total</td>
<td>264</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The income between RM 9000 to RM 28999 per annum made up 29.9 percent of the total respondents. Meanwhile the smallest percentage of the income group by the respondents is more than RM 49000 per annum with 10.2 percent. Table 2 summarizes the information on income per annum. While, Table 3 shows the detail on the distribution of the sample by age. From the table, most of the respondents fall in the age of 26-33 years old followed by 34-41 years old with 40.5% and 26.9% respectively.

Table 3: Distribution of Respondents by Age

<table>
<thead>
<tr>
<th>Age group</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 17 years old</td>
<td>9</td>
<td>3.4</td>
</tr>
<tr>
<td>18 to 25 years old.</td>
<td>45</td>
<td>17.0</td>
</tr>
<tr>
<td>26-33 years old.</td>
<td>107</td>
<td>40.5</td>
</tr>
<tr>
<td>34-41 years old.</td>
<td>71</td>
<td>26.9</td>
</tr>
<tr>
<td>Above 41 years old</td>
<td>32</td>
<td>12.1</td>
</tr>
<tr>
<td>Total</td>
<td>264</td>
<td>100.00</td>
</tr>
</tbody>
</table>

As for marital status information, out of the 264 respondents surveyed, 161 (61.0%) respondents are married single and 102 respondents are single with 61.0 percentage and 38.6 percentage respectively. Meanwhile one respondent was divorced. Table 4 summarizes the information regarding the marital status. In Table 5, the respondents most preferred operation hours is between 10 am to 11.59 am which made up the largest percentage, 27.3 percent of the total number of respondents. While the operation hours between 2 to 4 pm take

---

Sub-theme B: Global Issues, Institutional Policies & Prof Development in Education

### EMPATHY

<table>
<thead>
<tr>
<th>No. Question</th>
<th>Question in the questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q10</td>
<td>The faculty staffs, tutors are courteous in extending their service.</td>
</tr>
<tr>
<td>Q11</td>
<td>The faculty staffs are helpful in attending to students’ queries</td>
</tr>
<tr>
<td>Q12</td>
<td>Faculty tutors are approachable and considerate.</td>
</tr>
</tbody>
</table>

### ASSURANCE

<table>
<thead>
<tr>
<th>No. Question</th>
<th>Question in the questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7</td>
<td>The MyVLE is accessible at all times.</td>
</tr>
<tr>
<td>Q8</td>
<td>The contents of the course materials are appropriate, relevant and easy to follow.</td>
</tr>
<tr>
<td>Q9</td>
<td>The face-to-face tutorials are effective to facilitate learning</td>
</tr>
</tbody>
</table>

### RELIABILITY

<table>
<thead>
<tr>
<th>No. Question</th>
<th>Question in the questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>The course materials (assignments, modules) are received on time.</td>
</tr>
<tr>
<td>Q2</td>
<td>The face-to-face tutorials are held as per schedule.</td>
</tr>
<tr>
<td>Q3</td>
<td>The level of information provided at PPW/T is reliable and sufficient to your queries.</td>
</tr>
</tbody>
</table>

---
up the second place with 32.6 percent of the respondents. Table 6 provides information regarding the preferred operation hours by the respondents.

Table 4: Distribution of Respondents by Marital Status

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>102</td>
<td>38.6</td>
</tr>
<tr>
<td>Married</td>
<td>161</td>
<td>61</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>264</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Table 5: Distribution of Respondents by preferred operation hours.

<table>
<thead>
<tr>
<th>Preferred operation hours</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between 10 to 11.59 am</td>
<td>72</td>
<td>27.3</td>
</tr>
<tr>
<td>Between 12 to 1.59 pm</td>
<td>56</td>
<td>21.2</td>
</tr>
<tr>
<td>Between 2 to 4 pm</td>
<td>69</td>
<td>26.1</td>
</tr>
<tr>
<td>No specific time</td>
<td>67</td>
<td>25.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>264</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**Most important and least important dimension**

From this study, “reliability” dimension is perceived as the most important aspect the faculty should have by the learners. Reliability is termed as the degree of being able to depend with confidence when using particular goods and services and performing the task right on first attempt because service errors are not only expensive to correct in a direct sense, they can affect the customer’s confidence in the institution as a whole. “Reliability” mean score is 3.3813 and this amount alone constituted 25% of all respondents. Meanwhile, “assurance” also is one important dimension where it constitutes 23% of all the respondents. In other world, courtesy plays an important role in the service quality for this study. Table 6 and Table 7 provide a good description in explaining the sample proportion, which supported each feature.

Empathy” is the least important dimension perceived by its learners for the faculty with a mean score of 3.1383. Empathy can best be defined as the strength of projecting the organizations’ image into the service that is of interest to the customers. Meanwhile, the second least important feature is “responsiveness” with mean score of 3.2708. “Responsiveness” can be concluded that responsiveness is the degree of enthusiasm, which the service provider portrays when dealing with their respective customers. It involves making it abundantly clear to customers that you want and appreciate their business.

Table 6: Five SERVQUAL Dimensions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibles</td>
<td>52</td>
<td>19.6</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>50</td>
<td>19.0</td>
</tr>
<tr>
<td>Assurance</td>
<td>62</td>
<td>23.5</td>
</tr>
<tr>
<td>Reliability</td>
<td>66</td>
<td>25.0</td>
</tr>
<tr>
<td>Empathy</td>
<td>34</td>
<td>12.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>264</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Table 7: Five SERVQUAL Dimensions Mean Score.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Reliable</th>
<th>Tangible</th>
<th>Responsiveness</th>
<th>Empathy</th>
<th>Assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.3813</td>
<td>3.3333</td>
<td>3.2708</td>
<td>3.1383</td>
<td>3.3491</td>
</tr>
<tr>
<td>Standard Deviations</td>
<td>0.9772</td>
<td>0.9676</td>
<td>0.9626</td>
<td>0.9730</td>
<td>0.9570</td>
</tr>
<tr>
<td>Variance</td>
<td>0.9550</td>
<td>0.9362</td>
<td>0.9266</td>
<td>0.9468</td>
<td>0.9159</td>
</tr>
<tr>
<td>Importance</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

**Testing the hypotheses**

Testing of hypotheses is important because it will show the relationship between 2 or more variables.

1. **H⁰**: The time taken for processing will not affect the overall service quality.
   **H¹**: The time taken for processing will affect the overall service quality.
By comparing the results of the significant level of the Spearman test and the value of $\alpha = 0.05$, we can see that the significant level of 0.042 is smaller than $\alpha = 0.05$. We reject the null hypothesis. This indicated that there is significant differences for the time taken for processing in affecting in the overall service quality.

2. $H_0$: The faculty staff’s courtesy will not affect the overall service quality.
   $H_1$: The faculty staff’s courtesy will affect the overall service quality.

This sample has significant level for the Spearman test of 0.594. Since it’s value was higher than $\alpha = 0.05$, we cannot reject the null hypothesis. Henceforth, we can deduce that there is insufficient evidence to establish that the faculty staff’s courtesy will affect the overall service quality.

However, another test had been conducted or carried out to test the five-service performance. There are reliability, tangibles, responsiveness, empathy and assurance. In this study there are six (6) questions regarding each dimension.

In the reliability dimension, the respondents are more concerned to the faculty in performing error free records as the priority. Next, the respondents will have more concerned to faculty promises in getting something done by a certain time. All this can be seen as the weighted mean score for the question 6 and question 2 with 3.3674 and 3.3598 respectively. Meanwhile, the least issue the respondents will consider is whether the faculty will perform the service right the first time with the score as 3.1667.

Then in the tangibles dimension, the respondents are concerned with the spacious of the faculty in catering the transactions at rush hours especially during lunch hours with the mean as 3.5492. Another criterion that the respondents is concerned will be the forms used are simple and easy to comprehend with the score 3.4356. The least important criterion is the appearance of the faculty’s employees with the score of 3.1402.

In the responsiveness dimension, the most concerned criteria are the manners of the faculty employees in serving the customers with the mean score as 3.4015. The faculty employees need to be polite and friendly. The second important criterion is that the employees in the faculty will inform the customers of the exact time a requested service will be performed. Meanwhile, the least important criterion in this dimension is whether the faculty employees are able to take suggestions and criticism with the mean score 3.1075.

In the empathy dimension, the most important criterion is the individualized attention provided by the faculty to the customers with the mean score of 3.3712. The second significant criterion is the faculty staff in understanding the specific needs of their customers. Here the mean score is 3.322. Meanwhile the least important criterion is the whether the faculty employees treat the customers as the most valued customer to them with the mean score 2.9659.

In the last dimension assurance, here the respondents’ main priority is the security in pertaining their financial needs and that the faculty employees have the necessary and adequate knowledge to doubts with the mean score of 3.5568 and 3.5265 respectively. The least important criterion is the faculty employees trying their best to give the best explanation to any enquiries with mean score 3.2045.

**Conclusion**

Perception is a very subjective matter and is constantly changing throughout the time. Therefore, the results of this research may not be relevant in the future. From this study, it is noted that reliability is the most important dimension of the faculty’s service. The least important feature is being empathy. As a result of this study, the following recommendations are suggested. The vital importance of the service quality for the faculty must be accurately communicated to employees. Faculty employees should be brought together to discuss service quality. This could be done through orientation and training programs and by incorporating it as part of the performance appraisal system. The performance of staffs should be continuously monitored and rewarded against present standards set based on learners’ requirements.

All faculties’ staffs must accept responsibility for servicing customers. Coordination should exist between officers, departments, divisions and branches so that learners are properly served. A learner will have an unfavorable opinion of a faculty if he/she is constantly faced with problems such as when he/she is wrongly briefed or cannot find the right staff to answer a particular question. It requires good internal communications and motivation to avoid these problems. Close cooperation among staffs allows problems to be tackled and resolved in an effective manner. People are very unpredictable, emotional and temperamental. Therefore, a
standardized service quality requires that all employees conform to the same procedures constantly. To control quality, a faculty must measure and monitor it. A quality measurement system should cover all service stages. Since the process of quality is an ongoing process, there should be a program that constantly monitors the service quality level. If quality is measured, problems can be identified and corrective actions such as changing the staff or/and, procedures and training methods could be implemented. Whenever there are delays or problems, it should be brought to the learners’ attention as early as possible. By doing so, it will create a positive impression to the learners because the faculty is attending to it immediately. Learners want assurance that their interests are in reliable hands. Other than that, the time taken for processing application plays an important role in valuing the overall faculty service quality. Here, it is because the learners want their faculty to approve their application on a timely manner.

References

Webster, Frederick E. and Wind, Yoram (1972), Organizational Buying Behavior, Englewood Cliffs, NJ: Prentice-Hall
Student Destination Choices In International Education: Exploring Students’ Attitudes to Study Abroad

Dr Monika Foster
Business School
Edinburgh Napier University
m.foster@napier.ac.uk

Abstract

In the context of increased cross-border education (Knight 2004, 2006, 2009), there is a growing body of literature about international student destination choice (Bodycott, 2009; Li and Bray, 2007; Mazzarol and Soutar, 2002; Padlee, Kamaruddin and Baharun, 2010; Wilkins and Huisman, 2011) including the push and pull model of international student choice (Mazzarol and Soutar, 2002). Furthermore, specific studies explore factors influencing the students’ choice such as personal reasons, perceived educational benefits, quality of teaching, finances, culture and social perceptions (Cubillo, Sanchez and Cervino, 2006; Chen, 2007). Most studies are concerned with the movement of students from East to West with a slowly growing body of research about students moving from West to East. This paper reports the results of a mixed method research project to investigate the barriers and enabling factors involved in Brazilian students’ decision making to study in the United Kingdom, as an example of the new movement of students supported by government initiatives. A number of perceived barriers are identified, such as the cost, and negative past relationships. Developing positive relationships with Brazilian institutions, promoting a contemporary view of life in the UK and addressing the misinformed perception of the cost of study may help enhance an interest among the Brazilian students in studying in the UK.

Keywords: International student mobility, barriers and enabling factors, Brazilian students studying in the UK

Introduction

Since the second half of the 20th century, the forces of globalisation have encouraged universities to look further afield to recruit students. They have also prompted students to engage in growing student mobility. The transformative process of international education has seen the universities engage in increased cross-border education (Knight, 2004, 2006, 2009; de Wit, 2002) and encourage more student mobility, which grew by 52% over the period of 1998-2004 (King, Findlay and Ahrens, 2010).

Literature on students’ motivations to study abroad

Within the context of encouraging students’ mobility, there is a growing debate about the benefits of study abroad for the students. A number of studies conclude on the main benefits such as expanding students’ outlooks, making them more independent and confident, as well as having increased intercultural competencies (Carlson & Widaman, 1988; Dwyer & Peters, 2004; Ingraham & Peterson, 2004; Nunan, 2006; Vincenti, 2011). Furthermore, there is an abundance of research on the international student destination choice, including factors playing a part in students making decisions where to study abroad such as personal reasons, perceived educational benefits, quality of teaching, finances, culture and social perceptions and (Bodycott, 2009; Marine and Carter, 2007; Mazzarol and Soutar, 2002; Padlee, Kamaruddin and Baharun, 2010; Wilkins and Huisman, 2011).

Push-pull model of international student choice (Mazzarol and Soutar, 2002) aims to capture the main obstacles and enablers in student choosing a particular study destination. This model encapsulates factors involved in students’ decision making grouped as the push factors. These include a lack of capacity and opportunities to study in students’ home countries, lower educational quality, employer preference for overseas education or political and economic problems in the home countries. The pull factors in the host country include the quality
of education, reputation of country / institution, high improved employment prospects and opportunity to experience a different culture (Wilkins et al., 2012).

There are numerous studies into the specific challenges and enabling factors playing a part in students’ motivations to study abroad. They can be grouped into four groups of factors: cost, past social relationships, language and homesickness.

**Cost**

The most commonly cited barrier to student mobility is cost (Brux & Ngoboka, 2002; Calhoun, et al, 200; Doan, 2002; Hembroff & Rusz, 1993; Perdrea, 2002; Raby, 2005). Studies amongst cohorts of African-American (Brux and Fry, 2010), Asian (Mazzarol and Soutar, 2002) and USA students (Evans et al., 2008) report congruent results. A recent study of factors that inhibited or promoted uptake of study abroad among New Zealand students reported that 60% rated cost as one of their top 3 barriers (Doyle et al., 2010). Equally, although Binsardi and Ekwulgo (2003) reported that cost only ranked as the 4th most important factor, international students identified lowering tuition fees and providing more scholarships as being the two most important means of attracting greater numbers of international students.

**Past social relationships**

Due to established social views on study abroad in a specific country or for specific groups of students, helped by the media influence, students can form a view of study abroad programmes being “something for other students, but not for me” (Burr, 2005: 1). Study abroad can be seen as something elitist, with students failing to make a connection between study abroad and their future employment. Students may filter out or ignore information about study abroad. New destinations could be perceived by the students in the same way.

**Language**

The language barrier can be a major constrain for students considering study abroad. This means for any host country and/or institution wishing to increase student mobility, they should foster the development of foreign languages among students. Language improvement can be the main attraction for students considering study abroad. In fact, improving English is often quoted as one of the main reasons for their choice (Bodycott, 2009; Forsey, et al, 2012; Wilkins and Huisman, 2011). Equally, in the increasingly competitive job market, foreign languages are a sought-after asset, so developing other languages than English through a study abroad period has become one of the pull factors (Chen, 2008; Forsey, et al, 2012; Mazzarol & Soutar, 2002).

**Homesickness**

Homesickness, leaving family and friends behind, and moving to a new learning environment remain major barriers to students’ participation in study abroad. 17% of students within a study by Doyle et al. (2010) reported leaving friends and family to be the most important obstacle of studying abroad and 39% rated it as one of their top 3 obstacles. This idea falls into the framework of Social Learning Theory (Bandura, 1977) in which people learn within a social context, however, if there are certain worries or threats, either perceived or actual, they can impinge upon the experience as a whole. There are a number of studies which use Social Learning Theory within study abroad research (McLeod and Wainwright, 2009; Rodriguez and Roberts, 2011; Wildemeerch., et al 1998). Rodriguez and Roberts (2011) suggest that study abroad programmes should widen their perspectives to include pre and post stages within a student’s experience.

**Summary**

While increased student mobility features on the universities’ agenda, it is vital to recognise a range of factors involved in student decision making when it comes to the participation in the study abroad, their destination choice and the nature of the study abroad. The factors can exert a negative influence on students’ choice but if addressed for specific groups of students, they can be less of a barrier and may be even turned into a pull factor.

**Encouraging new destinations for student mobility**

The push-pull model has been mostly applied to students choosing to study in Western countries such as Australia, the United Kingdom and the United States. Over the last decade or so, students began to move in new directions: for example, east to east, to Singapore and Malaysia, the new educational hubs (Knight, 2011).
Further development of the new ‘flows’ of students is encouraged by the host countries who receive a range of economic, social, cultural and political benefits, however, attracting international students has become ever more challenging, with universities competing against each other in an attempt to attract students.

As an example of an initiative encouraging new study destinations, Brazilian government is presently committed to providing funding to enable Brazilian students to undertake periods of overseas study through programmes such as Science without Borders, which is expected to bring 10,000 Brazilian students to the UK over the next four years (UK Higher Education Unit, 2012). However, just as the range of benefits that overseas study can bestow upon students is diverse, the motivations which underpin students’ choice of destination are complex and multifactorial. In order to gain an insight into the motivations of Brazilian students towards studying in the UK, a study has been designed to explore the motivations of Brazilian students’ towards studying in the UK.

**Study Design**

From the theoretical perspective, this study sought to explore to what extent the challenges and the pull or enabling factors mentioned in the empirical studies also apply to Brazilian students considering the potential of study in the United Kingdom.

The study took place in three Brazilian Universities: Federal University of Rio de Janeiro, Federal University of Sao Paolo, Pontifical Catholic University of Sao Paolo. These universities were selected as they represent students from varying academic and socioeconomic backgrounds to ensure a rich data. Federal University of Rio de Janeiro, is one of the oldest universities and the largest federal university in Brazil. The students at the Federal University of Rio de Janeiro are largely middle class. Federal University of Sao Paolo is a public university in the greater Sao Paolo. The profile of the students can be characterised as middle to lower-middle class. Pontifical Catholic University of Sao Paolo is a private, non-profit, high ranking university. It is one of the largest and most prestigious universities in Brazil with middle to upper-middle class students who pay fees.

The participants in the study were undergraduate students of Languages (Federal University of Sao Paolo and Federal University of Rio de Janeiro) and postgraduate students of Applied Linguistics (Pontifical Catholic University of Sao Paolo). These two subject groups were selected as they represent students who are likely to have fairly high levels of motivation to study abroad and some awareness of the benefits of the study abroad due to their language study backgrounds and motivation to develop their skills.

**Method**

The study adapted a mixed-method approach, collecting both quantitative data from a survey and qualitative data from focus groups. Employing two methods of data gathering allowed for the convergence of results (Golafshani, 2003). The data from the questionnaires was further developed by the narrative from the focus groups, enabling the inclusion of the participants’ perspectives and stories (Forsey, 2008).

The survey had nine questions including a question whether the students would choose to study in the UK, followed by questions identifying the enabling factors such as getting a better job back home or in the UK, improving English language, networking, possibility of postgraduate study, having an experience of study abroad; and the barriers to choosing the UK to study there including being away from home, weather, food, cost, lack of scholarships and language issues.

A total of 117 questionnaires were returned. Following the questionnaires, two focus groups were held at Federal University, Rio de Janeiro and Pontifical Catholic University of Sao Paolo in order to add greater depth and richness to the data obtained by the questionnaires.

**Survey findings**

Of all the students taking part in the survey, 93% said they would consider studying in the UK. From the responses about the enabling factors or benefits of choosing to study in the UK, it is clear that improving English is the main motivator (91%), followed by having an experience of study abroad (73%) and doing research at postgraduate level (53%). The least often selected enabling factor is networking or making an international friend (13%). In the world of the Internet and social networking it seems less valued by the students as an enabling or pull factor in relation to study in the UK.
The results regarding the barriers were topped by cost (79%) which seemed by far the most common concern for the majority of the surveyed students. Being away from home (35%) and difficulty to obtain scholarships (28%) follow. Only 21% of students pointed to potential language barriers, which is probably due to the fact that most of the surveyed students are Languages students with a good command of English.

The above findings indicate that, to some extent, the students in this study recognise similar barriers and enabling factors when considering study abroad as students from other empirical studies. However, the participants give much more attention to the cultural experience of study abroad and possibilities for postgraduate study in the UK as the main motivating factors, apart from improving English. The main barrier identified by the participants is the cost.

Focus groups findings

Following the transcription of the tape recordings using Audio Notetaker version 2.5, thematic analysis of the focus groups was performed using Nvivo software, version 9.

Cost

The survey results showed the main barrier being the cost. Cost was also the first barrier mentioned by both focus groups: ‘Money, cost - it cost more than studying in Australia or Canada, for example. When you think about studying I think about cost first.’ (Federal University of Rio de Janeiro)

Participants in both focus groups were under the impression that studying in either USA or Australia was cheaper than the UK. However, after looking at the tuition fees and living costs for universities of a similar academic standing, it is actually cheaper to study in the UK. This perception could be due to a difference in currency, as Sterling currency is less known in Brazil, whereas America, Australia and New Zealand all use dollars, which is more familiar to the students (Brazilian Real - R$).

Mazzarol and Soutar (2002) reported that availability of part-time work to support study was of far greater importance than the tuition fees. In the study, only the Federal University group mentioned the uncertainty of being able to find part-time work as being a significant factor in destination choice for overseas study ‘What I think is that we also have to deal with the uncertainty about not knowing if we will be able to find a job or if the job is going to be able to support us while we study.’ (Federal University of Rio de Janeiro) This reflects the differences in socio-economic background of the two groups of students, as Mazzarol and Soutar (2002) found the importance of part-time work to be indicative of socio-economic status.

Past Social Relationships

Relationships were mentioned quite extensively in the focus group from the private Pontifical Catholic University in Sao Paolo and past social relationships between Brazil and the UK seem to exert an even greater impact on students’ decision making. The students within that particular focus group considered the British to be pompous, speaking down to Brazilians: ‘Normally people from the UK think they are coming to Brazil to teach and that we are going to be there to learn and there is not this relationship that believes that we Brazilians have something to teach as well, we have something to offer.’ (Pontifical Catholic University)

It seems that the past relationships can contribute to perceived barriers but a better understanding of the opportunities with both new and current collaborations could reduce this barrier to students’ choice. The participants are quite verbal about the need for more information on why and where to study in the UK: ‘There is a lack of advertising... More information on the current opportunities in the UK would help. People choose to study at London, Oxford and Cambridge because of the cultural events, shopping and stuff but we don’t really know what life is like for students in the UK.’ (Pontifical Catholic University)

Language

Both focus groups agreed that few people in the UK speak Portuguese, therefore not going to come over to Brazilian universities to study: ‘the students from the UK should be encouraged to learn languages, Portuguese, then they could come and stay here as we do not teach in English, and benefit from the exchange.’ (Federal University of Rio de Janeiro)
This could be a contributory factor to the perception that British people feel they are superior and do not need to learn Portuguese. On the other hand, due to the native language of the host destination, English is of interest to the students, despite the fact that generally speaking they have a good command of English: ‘we all speak English but don’t use it a lot in everyday lives so going to study to the UK would help us practice and become confident with our English.’ (Federal University of Rio de Janeiro)

**Homesickness/Family and Friends**

Another highly reported barrier in the focus groups was homesickness. Homesickness is a substantial barrier as Brazilians are a society based on patriarchal and family relations. A number of students pondered on the feeling of being away from family and friends: ‘being so far away from your family is hard’ and ‘In our class we are like family. If I don’t go to a class then I can rely on help from the others. When I was abroad I didn’t have that.’ (Federal University of Rio de Janeiro)

However some students in the focus groups, especially in the Federal University of Rio de Janeiro, showed signs of recognising the need to developing independent skills whilst maintaining their family ties: ‘it’s not good to rely on others all the time. We can learn to be self-reliant from being abroad.’ (Federal University of Rio de Janeiro)

**Discussion and recommendations**

The study has revealed that the key factors involved in the participants’ decision making regarding study abroad overall represent areas similar to the factors identified in other empirical studies. However, there are also some distinguished areas of barriers and motivators displayed by the participants in the study.

The main barriers in the study involve cost, past social relationships and homesickness. These barriers, especially those pertaining to cost, although exerting a very strong influence, appeared to have been founded upon perceptions and assumptions, which do not reflect the reality of studying within the UK. This may indicate that the reason Brazilian students have historically tended not to choose the UK to study has been based upon the lack of information about the opportunities involved in study abroad in the UK. It highlights a timely necessity for awareness rising and information campaign to help limit the perceived barriers.

The key enabling or pull factors are improving English, having an experience of study abroad and doing research at postgraduate level. There is also an underlying interest in learning about the host country’s culture at national and regional level. This would not only help limit the negative stereotypes but add an important value to the study abroad for any Brazilian students considering study in the United Kingdom. English language is clearly an enabling factor, and Portuguese is a barrier to fostering UK students exchange with the Brazilian students. Any universities looking to enhance student mobility should consider these factors by promoting opportunities to develop both languages respectively and stress the benefits of doing so for professional and personal purposes.

Students should be encouraged to consider study abroad in the United Kingdom as an opportunity to develop their independent skills for professional purposes. The careful wording of this advice should stress that independent skills together with experiencing new culture and developing a sound inter-cultural knowledge should be promoted to the families as the major benefit from study abroad.

**Limitations**

Although this study involved participants from three institutions with a diverse ranking and student profile, there is a need to include a wider spread of institutions across Brazil and even across Latin America to further investigate the key factors shaping students’ decision making about study abroad. Additionally, further studies with students representing a wider selection of disciplines are required to achieve a spectrum of views. Finally, further studies with other stakeholders, such as staff, parents and government institutions such as the British Council, and the Brazilian Ministry of Education, could further inform this study’s findings and contribute to a better understanding of the complex factors involved in students’ motivations to choose to study abroad.
References


Abstract

This paper examines the perception of counselling services among Malaysian college students. Counselling services are vitally important and must be available for students in higher learning institutions. These services give students reflective feedback which helps provide better personal understanding and enhances personal growth. There have been studies that found counselling services in Malaysia lacking in professionalism which has deterred students from seeking further help. Hence, it is important to determine students’ perceptions of the effectiveness and professional quality of counselling services in a Malaysian college setting. This study will involve twenty college students who have already sought some form of counselling. It will attempt to determine their perceptions of the counselling experiences they have had and to gain insights into them as individuals. The cohort will be interviewed using semi-structured questions. The topics to be discussed will be determined by the researchers prior to the interview. These interviews will be transcribed and salient points will be highlighted. These points will be used to determine the factors that influence students’ perceptions of and willingness to seek counselling. Data collected from the interviews will be analysed using the interpretative approach to allow common emerging ideas to be categorized and discussed under various themes. It was found that confidentiality issues, as well as the professionalism shown by counsellor, are important determinants of whether a student will seek counselling. Cultural factors and gender issues also seem to play a role.

Keywords: Counselling Services, College students, Perceptions, Interpretative approach

Introduction

Counselling services in the form of career counselling has been part of the Malaysian elementary and secondary school system from as early as 1957 (Pope, Musa, Singagavelu, Bringaze & Russell, 2002). The main role of school counsellors then was to provide career related information to students. During the early stages of counselling services development, school counsellors assumed the roles of counsellors as well as teachers (Pope et al., 2002). Since the introduction of these services, there has been a constant call for increasing accountability of services offered. As such, it is important to continuously re-evaluate the needs of students in learning institutions. Beesley (2004) noted in her study that there is room for improvement in services offered which could be enhanced by feedback from students as well as their teachers. Abdullah (2011) found that Malaysian students studying abroad did not seek counselling services provided by tertiary institutions they were enrolled in. The students in the study tended to seek help among friends. Similar results were found in another study by Xie (2007) who studied the perceptions of Chinese students towards...
using counselling services provided by universities. These students, although not against counselling services, were more inclined to seek help from friends or people that they knew.

**Student perceptions of counselling services**

According to See and Ng (2010), there is a lack of professional training among counsellors specifically serving students’ needs in Asia. There needs to be more trained personnel to meet a growing population which are currently experiencing many of the problems faced by developed nations. With such lack of professional training, the perceptions of students using these services would be affected.

The Malaysian culture values the group more than the self (Talib, 2010); as such, among students the group is a more important entity. Malaysians tend to work better in groups than individually. These students are also better able to comply with mandatory counselling rather than voluntary counselling (Talib, 2010). It was found that Malaysian students, who go through counselling session individually struggle with self-expression, which according to Hofstede (2003) is difficult for people with high power distance index. Added to this, being assertive is viewed by Malaysians as a negative trait. This is needed if counselling is to be effective, especially in altering behaviours that are limiting to the person being counselled.

A study by Kim, Ng and Ahn (2009) found that students from different cultural backgrounds seemed to benefit from a shared world view with their counsellors. Interestingly, it was also found that a shared cultural background is not necessary to allow for in depth interaction between the student and counsellor. Given all the intervening factors that can influence the counselling experience for students, we are interested in determining students’ perceptions of counselling services in a Malaysian college setting.

**Methodology**

The role of the counsellor is to provide reflective feedback by paraphrasing and reflecting the clients’ feelings in order to assist them in gaining a better understanding of themselves. This may enhance their personal growth and help clients to construct and implement the necessary strategic moves toward their goals (Cormier & Hackney, 2007). Hence, it is essential to explore students’ perceptions of counselling services and how these perceptions can influence their willingness to use such services.

In order to explore the perceptions of students towards counselling, the main research questions underpinning this study are:

1. What are students’ perceptions toward counselling services?
2. How do these perceptions influence their willingness to use the services?

The researchers carried out their investigation on students’ perceptions using the qualitative research approach. The samples used in this study were students from a higher institution of learning in Malaysia.

**Design and Procedure**

The data in this investigation was generated by interviewing participants with a mix of semi-structured and open ended questions. The interview was focused on attempting to assess students’ perceptions towards counselling services and how these perceptions influenced their willingness to use them. The semi-structured questions allowed the interviewer to clarify answers from the participants.

**Participants**

The sample in this study consisted of 20 college students, 10 males and 10 females, all from various fields of studies, who volunteered to take part. The participants must have used counselling services in their current institution or in a previous institution at least once. They were between the ages of eighteen and twenty-one which is representative of tertiary education students. As the participants who qualified were few, the snowball sampling method, which falls under the category of non-probability sampling, was used. In this method, participants are used as a referral source to increase sample numbers (Shaughnessy, Zechmeister, and Zechmeister, 2009). The informed consents of the participants were obtained. They were also told that they could withdraw at anytime during the study and that all data obtained would be kept confidential and would only be viewed by the researchers.
Results

RQ1. What are students’ perceptions toward counselling services?

Analysis of the salient points from data for students’ perceptions toward counselling resulted in two categories: students’ perceptions of counselling services and attitudes towards counselling services. These categories will be used in an attempt to answer the first research question.

a. Students’ perceptions of counselling services.

Most of the participants, 15 out of 20, explained that counselling services is a process to help an individual problem solve and is a platform for the counsellor to give advice. For instance, one of the participants commented that:

“Counselling service is the process that involves two persons in conversation. The conversation normally involves advice giving and advice that is given is more focused in helping the student solve their problems.”

Another 5 participants commented that counselling services may be associated with students’ psychological health. They understood that counselling services is about helping students reduce their stress levels and deal with any psychological health problems they may be going through. For instance, one of the participants commented that:

“Counselling service is a service that helps people with high stress levels to reduce their stress.”

It was also found that about half of the students, 12 out of 20, perceived that counselling services could change the way they see and feel about things thorough the advice and suggestion given by the counsellor. One of them commented that:

“Counselling service is able to change my thinking by giving me advice and suggestions.”

However, some of the participants, 8 out of 20, commented that counselling services may change their way of thinking about something, but this depended on the usefulness of the suggestions and advice. For instance, one of the participants said:

“Counselling services may or may not change my way of thinking about something; it depends on the advice if it is useful or not. Besides that, it also depends on whether I can accept the advice given.”

Discussion:

The results seem to imply that students perceive counselling more as a quick fix for the problems they are facing rather than as a tool to help them gain better understanding of themselves. Such perceptions could be culturally oriented, as Asians tend to seek advice and solutions to problems rather than engage in discussions to further their self-understanding. These seem to support the finding from Kim, Ng, and Ahn (2009), that students from different cultural backgrounds may not necessary allow in depth interaction between themselves and counsellors. This finding does not support the idea that counselling is a self-help, reflective process. As noted by Cormier and Hockney (2007), counselling is considered a helping profession that offers clients a chance to develop better self-understanding through assessment and assists them in identifying their own needs rather than providing them advice and solutions to a problem.

b. Attitudes towards counselling services.

About three quarters of the students, 16 out of 20, had set ideas that counselling is about problem solving and seeking advice. Many of these students gave similar answers during the interview. An example of one of them was:

“Counselling is about giving advice and problem solving. Besides this, I do not have any other understanding of counselling services.”

There were 2 participants who described counselling services as being related to stress management. While another 2 participants said that counselling services helped them gain a better self-understanding.
A majority of the participants perceived that counselling is no more than a means of obtaining solutions to personal problems and obtaining advice from an authority figure that they trusted. Only two of the participants perceived that counselling is about self-understanding. This would imply that a majority of students would use counselling services to resolve personal problems they are facing rather than as a platform for self-exploration. This seems to support the finding by Xie (2007) that most students tend to seek help from their friends rather than seek help from counsellors.

**RQ2. How do these perceptions influence their willingness to use the services?**

Analysis of the salient points from the data for students’ willingness to use counselling services resulted in a total of four categories consisting of: person to turn to when experiencing problems, confidentiality issues, effectiveness of the services, and expectations of and concerns about the services. These categories will be used in an attempt to answer the second research question:

**a. Person to turn to when experiencing problems**

Most of the students, 13 out of 20, said that they preferred to share their problems with a friend. Apart from that, the remaining 7 participants mentioned that the problems they faced will be shared with their parents, especially their mothers. For example, one of the participants said:

“When I faced any problems, normally I will seek advice from my friends. If there is any problem in my life that I can’t fix it, I will tell the problem to my parents. Normally, they will help me to solve the problem.”

**Discussion:**

This finding appear to be similar to the results in studies by Xie (2007) and Abdullah (2011) where it was found that students are not inclined to seek help from counsellors in their higher learning institutions but prefer to share their problems with friends.

**b. Confidentiality issues**

A majority of the participants, 15 out of 20, mentioned that they were confident that the counsellor would not share their problems with a third party without their permission. They believed and trusted that their counsellor would maintain confidentiality. For instance, one of them commented:

“I believe that the counsellor is professional enough not to share my problems with others under any circumstances. Besides that, that is something personal and should remain confidential.”

There were 5 participants out of twenty who commented that the counsellor may break confidentiality under certain circumstances but were unsure of how this could occur. For instance, one of them said:

“Depends on the situation, the counsellor will tell others about my case if it is too serious but I do not know when this will occur.”

**Discussion:**

The results would suggest that confidentiality issues may deter some students from using counselling service. Although a majority of the students were confident that their counsellors would maintain confidentiality, about a quarter of them were concerned about counsellors maintaining confidentiality. This finding is similar to research by Ubulom, Ubulom & Igwela-Okanu (2012), where most students perceived that the practices of confidentiality in counselling and guidance were high. However, there should be some exceptions in cases where the clients intend to harm themselves or others (Cormier & Hackney, 2007). As such, it would be essential that the counsellor discuss these limits during counselling sessions.

**c. Effectiveness of the services**

Most of the students, 14 out of 20, commented that counselling services were effective for them, as it helped them solve their problems. For instance, one of them said:
“I think counselling service is effective when it provide(s) suggestions for me to solve my problems.”

However, 6 of the participants commented that the effectiveness of counselling depends on the seriousness of the problems they are facing. They perceived that if their problems are not that serious, then counselling may be effective, but not otherwise. For instance, one of them said:

“If the problems are related to my studies or my personal management problems, most probably counselling will be able to help. However, if the problems are more serious related to financial and family relationships, counselling may not help to solve the problems.”

Discussion:

This seems to support findings by Beesley (2004) indicated that the clients were generally satisfied with the outcome of their counselling services. However, this satisfaction also depended on the specific area of counselling sought. Apart from that, Aluede and Egbochuku (2009) also found that academic and career related issues had higher satisfaction outcomes. However, the satisfaction level decreased when the problems encountered were serious, such as family issues and financial issues.

d. Expectations of and concerns about the services

A majority of the participants, 17 out of 20, mentioned that they expect counselling services would be able to help them solve their problems. For instance, one of them commented

“When I go for the counselling service, I expect the counsellor will be able to give me suggestions and support to solve my problems.”

The remaining 3 participants said that they expected that the counsellor would be able to help them gain better psychological health. For instance, one of them commented:

“I expect that the counsellor or the counselling service able to help me to reduce my stress.”

Half of the participants, 10 out of 20, mentioned that confidentiality would be their main concern if they seek counselling services. They were most concerned that their personal problems could be disclosed to others by the counsellor. For instance, one of the participants commented:

“I hope that the counsellor will not be sharing my case because it needs to be confidential as it is my personal problem, and I have a right to my privacy.”

The other 10 participants were concerned about their ability to communicate their feelings to the counsellor. They were also concerned about the gender and race of the counsellor and preferred a counsellor of the same gender and race. For instance, one of them said:

“I feel weird when having counselling session with (an) opposite gender counsellor and different race counsellor, because the guy difficult to understand girl’s problems. Besides that, using other languages during counselling session, it is difficult for me to express my feeling.”

Discussion:

Most students were hopeful that counselling services would help them solve their problems. It was also found that students from different cultural backgrounds might not allow an in depth interaction between themselves and a counsellor which is similar to the findings by Kim, Ng and Ahn, 2009. Added to this, confidentiality issues may deter students from seeking counselling services as their personal problems may be reflective of their family problems which is similar to the findings by Talib (2010). As such, Asians in general may be less willing to seek counselling as they may be more private about their family matters.

Conclusion

Most of the students perceived that counselling services can be used as a means to find solutions to their personal problems. They tended to place the responsibility on their counsellor to come up with solutions to their problems rather than use counselling as a means to gain self-understanding and personal growth. Most students just want to solve problems that they are facing rather than develop skills to problem solve. It must be noted that
counselling involves a process of helping clients develop their goals; construct their plans, and implement the plan (Cormier & Hackney, 2007). This process is time consuming, and students need to be educated to carry out this process rather than demand a quick fix to their problems.

The findings also showed that positive attitudes towards counselling depend on students past experiences. This would imply that the professionalism shown by counsellor would play an important role toward encouraging students to seek counselling. Confidentiality issues also played an important part in whether students would seek counselling. Students wanted their privacy respected and would be unwilling to disclose their private thoughts if they felt vulnerable with the counsellor. In additional to this, cultural factors also seem to play a part. Students preferred to be counselled by individuals from the same culture. They also preferred individuals from the same gender.

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References


Innovating and Transforming University Teaching Through The Scholarship Of Teaching And Learning

Gavin Sanderson, PhD
Learning and Teaching Unit
University of South Australia, Australia
gavin.sanderson@unisa.edu.au

Abstract

This paper discusses the findings from an investigation on the efficacy of a capstone course in a Graduate Certificate in Education (Academic Practice). The course exposes many of its participants, all academic staff at the University of South Australia (UniSA), to the application of the Scholarship of Teaching and Learning (SoTL) for the first time. The nature and position of the ‘Negotiated Project in University Teaching’ in the Graduate Certificate is outlined, as well as how both the core course and the academic programme relate to the SoTL context at UniSA. Responses to an ethics-compliant anonymous online survey are analysed and discussed to provide an insight into the range of benefits and challenges that several cohorts of participants experienced as a result of undertaking the course. The survey data indicate that the Negotiated Project assisted participants to consolidate their understanding of the SoTL and provided many with their first opportunity to research, document and present their teaching work to their peers. This is an important insight into how universities can work productively with academic staff to facilitate their development as teachers and enhance their capacity to innovate and transform their teaching for the benefit of their students.

Keywords: Scholarship of teaching and learning; University teaching; Professional development

Introduction

Whilst universities value high quality teaching, very few lecturers outside education disciplines have formal education qualifications. Teekens (2000) noted that “most lecturers in higher education have little knowledge of educational theory” (p. 31). Whilst Race (2001, p. 1) and Cranton (2001, p. 40) both assert that there is no single, ideal way to teach, the teaching approaches employed by lecturers should, nevertheless, be educationally sound in order to impact positively on student learning. As suggested by Kember (1998), “an academic needs to be a discipline expert and a teacher” (p. 23). For most academic staff, becoming a ‘good teacher’ is an “on the job” undertaking (Coaldrake & Stedman, 1998, p. 90) that consists of formal and informal training which, according to Feixas and Euler (2013), is best “embedded in an institutional framework for quality teaching or within a university’s teaching and learning strategy” (Conclusion, para. 4). Quality imperatives and increased accountability around core elements of university business, for example, research and teaching, mean that universities around the world are in some way engaged in building the capacity of their workforces in these areas.

Over the past decade, the University of South Australia (UniSA) has implemented a range of formal and informal professional development opportunities for academic staff that are grounded in the institution’s approach to the Scholarship of Teaching and Learning (SoTL). This paper investigates aspects of one particular activity, a core course titled Negotiated Project in University Teaching that is a ‘capstone’ offering in the Graduate Certificate in Education (Academic Practice) to ascertain participants’ views on the efficacy of the course. The course requires its participants (UniSA academic staff) to conduct an enquiry into their teaching (or teaching in higher education in general) and produce a report that with little or no further development would be acceptable as a peer-reviewed conference presentation or a journal publication. A key aim of the course is for participants to use the knowledge and skills they have gained through the Graduate Certificate to underpin their Final Report. It is anticipated that the Graduate Certificate will build the knowledge, skills and confidence of participants to engage with SoTL perspectives for long term innovations and transformation of their teaching.
The paper provides the context around UniSA’s SoTL approach, then reports the findings of a survey that was distributed in late 2011 to 34 UniSA academic staff members who had successfully completed the Negotiated Project in University Teaching between 2008 and 2010. The survey data demonstrate that the Negotiated Project in University Teaching is highly valued and helps academic staff consolidate their thinking around the SoTL and provides many with their first opportunity to investigate their teaching and related interests, and then disseminate the findings in an academic context to their peers.

Scholarship of Teaching and Learning at UniSA

This section outlines the institutional context by relating UniSA’s engagement with the SoTL. In 2004, an extensive consultation with staff across the institution by a SoTL working party identified the following key issues and challenges associated with the SoTL:

- varied understandings about what the ‘scholarship of teaching and learning’ means;
- a prevalent view that teaching was carried out as both an isolated and an autonomous activity;
- a range of different views relating to an academic’s identity and standing as a scholar;
- the need for important links to be made with the discipline, professions and industry;
- the impression that research was privileged over teaching;
- a sense that there was little time to talk with colleagues about teaching and learning; and
- the need to take ethical considerations into account in scholarly approaches to teaching and learning.

Given these findings, the University moved to succinctly outline a fundamental approach to SoTL to act both as a touchstone and a springboard for academic staff in all disciplines to engage with the concept and the practice. This addressed, in part, what Boshier (2009) identified as a problem of “vagueness of SoTL” (p. 3) that is a contributing factor to why the SoTL is a “hard sell” (p. 12) to staff at universities. To this end, the University drew on the seminal work of Boyer (1990) to frame a succinct expression of SoTL for its academic community that had the capacity to support academic staff, whether their enquiry and investigation extended to “elaborate research designs and formal execution that go beyond a single classroom, programme, or discipline, as well as … quite modest efforts to document and reflect on one’s teaching and share what one has learned” (Huber & Hutchings, 2005, p. 4). Accordingly, at UniSA, SoTL is promoted as:

- **Being a reflective teacher** – gathering data about their teaching activity, and analyse and reflect upon it in a critical manner so as to improve their own practice.
- **Being a scholarly teacher** – engaging with the discussion and debates about teaching in the literature contributed by scholars in their own disciplines and using this to shape their practice.
- **Contributing to the scholarship of teaching** – presenting their own analysis of teaching, using relevant data they have related to the work of others, and which has been critiqued and validated by their peers, so as to contribute more widely to a better understanding of teaching and learning.

As mentioned, Boyer’s (1990) work informed UniSA’s engagement with the SoTL and it is generally accepted as the foundation of contemporary engagement with this concept. The Carnegie Foundation for the Advancement of Teaching, which continued Boyer’s (1990) work after his passing, suggested that all scholarly work should be characterised by (1) clear goals, (2) adequate preparation, (3) appropriate methods, (4) significant results, (5) effective presentation, and (6) reflective critique (Glassick, 2002, p. 3). It is implied that dissemination to peers is a feature of reflective critique. The preceding six characteristics of scholarly work are neatly conceptualised by Kreber (2005) as, “the practical, intellectual and critical work done by university teachers that facilitates student development towards significant educational goals” (p. 392). This neatly encapsulates UniSA’s engagement with the SoTL.

Graduate Certificate in Education (Academic Practice) and the Negotiated Project in University Teaching

The Graduate Certificate of Education (Academic Practice) has been a key initiative among a range of activities the University has instigated over the years to foster the SoTL in line with the SoTL approach presented in the previous section. It is a significant professional development opportunity for academic staff with no previous education qualifications yet whose academic work includes teaching. As a capacity building activity, all Lecturers and Senior Lecturers who were new to UniSA from 2007 to 2011 and who were employed either in continuing positions or on contracts longer than three years were sponsored by the University to undertake the Graduate Certificate on a part-time basis. At the time it was a condition of employment and a probation-related
activity. Participants in the Graduate Certificate had to complete three core courses and one elective, ideally over two years of part-time study. The courses in the programme, along with their School of Education course codes are (1) EDUC 5120 Introduction to University Teaching (core), (2) EDUC 5121 Assessment and Evaluation in Higher Education (core), (3) EDUC 5124 Negotiated Project in University Teaching (core), (4) EDUC 5122 Supervising Research Students (elective), and (5) EDUC 5139 Research Career Planning and Development (elective).

The Negotiated Project in University Teaching is a core element in the Graduate Certificate and acts as a capstone course. Participants in the Graduate Certificate are advised to undertake the Negotiated Project as either the final or concurrent final course in the programme so they can mobilise their learning from the earlier courses to inform their Negotiated Project topic. Since 2007, the course has had approximately 40 participants who have each developed a theoretical and/or data-driven topic of their own interest in learning and teaching in higher education, for example (but not limited to), Assessment; Course development; Curriculum design; Evaluation of teaching; Equity issues; Feedback; Flexible learning environments; Graduate qualities; Inclusive teaching; Internationalisation; Online teaching and learning; Practical teaching strategies; Practice-based learning; Student-engaged learning; Supervision of Higher Degree by Research (HDR) students; Teaching-Research nexus; and Work-integrated learning. See Appendix 1 for specific titles of participants’ final reports.

The teaching and learning arrangements of the Negotiated Project consist of four formal meetings (each up to two hours in duration) throughout the semester and individual supervision of projects by the course co-ordinators as required. The assessment for the course is based on the staged development and submission of an ethics-compliant project report that demonstrates engagement with the SoTL. On completing the course, participants have (1) identified a significant learning and teaching project in their discipline setting (or in teaching in higher education more generally), (2) developed a detailed study proposal for the project, (3) drawn on teaching, learning and discipline literature related to the project, (4) provided an oral presentation on the progress of their work, and (5) completed a project report (typically 4,000 – 5,000 words) related to teaching and learning with a view to submitting it to a refereed conference or journal upon completion of the course (although formal dissemination is not a course requirement).

Insights into Participant Characteristics and Experiences in the Negotiated Project

Every time the Negotiated Project was offered, the course co-ordinators accessed participant feedback on their own teaching through UniSA’s Student Evaluation of Teaching (SET) instrument. In addition, they obtained a sense of participants’ views on the course overall through UniSA’s Course Evaluation Instrument (CEI). Since the commencement of the Graduate Certificate, both sets of information have been utilised by course co-ordinators to reflect on their own teaching and also to address areas which would better facilitate the learning, engagement and overall experience of participants. Above and beyond the standard, semester-by-semester data sets, the course co-ordinators of the Negotiated Project decided it would also be important to glean a broader interpretation of participant characteristics and experiences in the core capstone course once they had graduated, that is, a common data set from multiple cohorts which would provide a useful snapshot of SoTL-related outcomes of the course. Accordingly, an ethics-compliant, anonymous online survey was constructed (see Appendix 2) and distributed in 2011 to 34 UniSA academic staff who had successfully completed the Negotiated Project between 2008 and 2010. A response rate of 62% was achieved with 21 completed surveys submitted. The results and discussion are presented in the following section.

Results and Discussion

The participants represented a diversity of research and teaching backgrounds and levels of experience. Two of the 21 respondents had been teaching for two years (full-time equivalent) or less in higher education. Thirteen indicated they had at been teaching for three to five years. A further three had been teaching at university level for between six and nine years. The remaining three respondents had 10 or more years of teaching experience at university. These findings demonstrate that although all participants had only recently been employed at UniSA, they all had some experience teaching at the tertiary level. In terms of their qualifications, 10 respondents had obtained a Doctor of Philosophy and one held a Professional Doctorate. Six indicated that their highest completed tertiary qualification was at the Master’s level and four had not completed any studies beyond their Bachelor’s degree. None had teaching or education-related qualifications.
Eighteen respondents indicated that their participation in the Negotiated Project course was their first experience in researching learning and teaching with a view to developing their teaching work into a conference paper or journal publication. Furthermore, 10 respondents had disseminated their completed (or further developed) Negotiated Project reports to peer-group audiences after the course had finished and 10 more indicated they were planning to do so. To have 20 out of 21 respondents either engaged in or planning to become involved in SoTL activity is extremely encouraging. The Negotiated Project final reports that were disseminated were of several types (see Figure 1).

Due to respondents being able to select more than one category of format type for their disseminated Negotiated Project final reports, the data presented in Figure 1 suggest that some of the 10 who disseminated their work may have initially presented at a conference and then further developed their paper for a journal. Alternatively, the conference may have issued the proceedings as an issue in a refereed journal. Whilst the data evident in Figure 1 do not make that level of detail apparent, overall, the level of activity and the 15 instances of refereed work is a heartening outcome in terms of participants engaging with the SoTL.

Participants were also asked what they perceived as the greatest barriers for them to research their teaching or teaching-related topics in their current position. They could choose more than one option. Figure 2 outlines the responses.

It is hardly surprising that in Figure 2, all but one respondent indicated they had little time to research teaching due to competing demands of their actual teaching-related activities, as well as workload expectations around research and administration. At UniSA, the typical academic workload is structured around 40 per cent of the week devoted to teaching and related activities, 40 per cent for discipline research, and 20 per cent for administration. Any institution that wishes to promote engagement with (and benefits of) SoTL to its academic workforce will need to think carefully about how to foster the activity to support ‘time poor’ academics, including changing perceptions about what activities should be carried out as part of the 40 per cent teaching load. Figure 2 also makes it clear that a sizeable group of respondents were lacking in experience and confidence in researching teaching and learning or were inexperienced researchers in general. Again, thought will need to be given about how to best support academic staff to gain the necessary knowledge and skills to
build experience and confidence in these areas. When asked which was the most significant of all the barriers listed in Figure 2, 15 respondents chose ‘time constraints’ due to competing demands, two indicated they were actively discouraged from researching teaching and learning and one respondent selected ‘low confidence’ about the process of researching teaching and learning. The following quote illustrates the tensions.

The lack of time is the main constraint. I have to juggle between completing the course, PhD study and teaching part-time. This is why I have decided to focus on linking the topic of my PhD research to the learning and teaching-related issues. Hence, this is how I (sic) manage to complete the final assignment of the course. (Respondent 12)

Respondent 12’s way of ‘working smart’ incorporates ‘competing demands’ into like tasks to maximise academic outputs. Another way of utilising ‘like efforts’ could be to incorporate SoTL into what might be considered as ‘typical’ curriculum development or renewal activities and use it as a way to introduce an evidence base to support or report on innovative ways to structure teaching and learning, and assessment arrangements (Hubball & Gold, 2007). The following quote from another respondent articulates a different perspective:

Limited time due to competing demands, more specifically, teaching and learning is not my core research area. I want and need to focus my research on my core area of interest and expertise - it is enough of a battle to get to that as it is. (Respondent 20)

Whilst there is no argument that researching teaching and learning is not the core discipline research area of most academic staff, by the same token, SoTL engagement could be seen as part of a lecturer’s 40 per cent (two days per week) teaching responsibilities. This could, in part, address the following statement from a respondent about concerns in relation to ‘the current focus on ERA [Excellence in Research Australia] where we need to publish within our FoR [Field of Research] code (i.e. Business and Management 1503). Education is outside our field and highly discouraged” (Respondent 21). It should not have to be ‘either/or’. With appropriate guidance and support around workload, it can be ‘both’. Indeed, morally, this approach should be a cornerstone of any university’s claims for, and pursuit of, excellence in teaching.

Figure 3 illustrates responses to the question, “What would be some enablers for you to research your teaching or teaching-related topics in your current position? (You can choose more than one)”.

### Figure 3. Participants’ views on enablers to assist them to research their teaching or teaching-related topics.

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<td><strong>Option 1</strong>: Recognition of workload to include research time for researching and publishing in learning and teaching.</td>
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<td><strong>Option 2</strong>: Opportunity to work with an experienced research mentor in learning and teaching.</td>
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<td><strong>Option 3</strong>: Being part of a team to research learning and teaching.</td>
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<tr>
<td><strong>Option 4</strong>: More experience in researching learning and teaching.</td>
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<tr>
<td><strong>Option 5</strong>: Assistance from academic librarians to find relevant literature on learning and teaching.</td>
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</table>

Whilst workload arrangements feature strongly (see Option 1) in Figure 3, it is important to also note the desire of quite a few respondents for research support through mentoring as well as to work as part of a team to engage in further SoTL activity. A separate survey question asked participants to indicate what the most important enabler was for them. Nine stated ‘Recognition of workload’, six indicated ‘Being part of a team’ and five listed ‘Working with a mentor’. Some related comments on the most important enablers are “Recognition of workload and the value of researching and publishing in learning and teaching” (Respondent 9). Respondent 11 stated, “An opportunity to work with a mentor as I doubt recognition of workload will EVER [capitalised in original] occur.” The quote below reiterates the tension between discipline research and SoTL research. Harking back to the finding of the UniSA SoTL working party in 2004 that there was an impression across the University that
research was privileged over teaching, it is interesting to note that this survey on the Negotiated Project has revealed a tension between types of research and their perceived value.

Really probably none of these enablers would lead me to do research in this area to any great extent because it is not my main research area. To be honest, I resist getting involved in research out of my core area as I have found it increasingly important to be focused about research in order to attract funding and to be able to publish in good quality forums. (Respondent 20)

Juxtaposed with Respondent 20’s partitioning of discipline research and SoTL research is the experience of Respondent 14 who said, “The development of my first research paper was an excellent skills development exercise, which has since led to authorship/co-authorship of four other papers, and which also influences the writing style in my doctorate.”

Despite the tensions that are apparent around the perceived value of types of research, being ‘time poor’ due to a range of competing activities, and lacking experience and confidence to undertake SoTL investigations, participants’ free text responses outlining the main benefits they experienced through undertaking the Negotiated project (summarised in Table 1) outline an assortment of valuable outcomes that bode well for participants, their students and the University more broadly.

<table>
<thead>
<tr>
<th>Nature of benefit</th>
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<tr>
<td>Gained confidence to research and disseminate</td>
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<tr>
<td>Allowed to investigate topic of own interest</td>
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<tr>
<td>Learning outcomes from Negotiated Project have influenced practice</td>
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<tr>
<td>Understanding how research informs teaching</td>
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<tr>
<td>Enabled a focus on teaching and learning</td>
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<tr>
<td>Exposure to research approaches for teaching and learning</td>
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<td>Has led to changes in curriculum</td>
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<tr>
<td>Interdisciplinary opportunities</td>
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<td>Led to ‘best paper’ at conference</td>
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<td>Opportunity to publish</td>
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<tr>
<td>Raised the profile of researching teaching and learning</td>
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<tr>
<td>Facilitated reflection on teaching practice</td>
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<tr>
<td>Researching and analysing teaching and learning</td>
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<tr>
<td>Stimulated interest in researching teaching and learning</td>
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<tr>
<td>Led to strong understanding of teaching-research nexus</td>
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</tbody>
</table>

Table 1: Participant views of main benefit(s) from undertaking the Negotiated Project

Twenty respondents indicated they saw a strong link between the SoTL and the Negotiated Project course. When asked to offer free-text comments on what SoTL meant for them after having completed the course, the following themes were distilled from the range of contributions: ‘Researching teaching’ (7 comments), ‘Dissemination’ (6 references), and ‘Research-informed teaching’ (5 remarks). ‘Research literature’ was mentioned four times, ‘Evidence-based practice’ on three occasions, and ‘Reflection / Critical self-reflection on teaching practice’ was also offered three times. There were three references to ‘Researching student learning’ and one each for ‘Theorising teaching and learning’ and ‘Improves student learning outcomes’. It was noted earlier that a finding of the UniSA SoTL working party from 2004 was that there were varied understandings of what the SoTL means across the University. Whilst there are nine themes identified here, they, nevertheless, constellate closely around key SoTL elements promoted by UniSA, that is, (1) Being a reflective teacher, (2) Being a scholarly teacher, and (3) Contributing to the scholarship of teaching.

**Conclusion**

This paper has provided evidence-based insights into SoTL experiences of participants who have completed the Negotiated Project in University Teaching. Analysis of survey data demonstrates a range of broad, deep and rich SoTL outcomes that are highly valued by participants and which have assisted them to consolidate their conceptualisation of the SoTL and its place in their academic work. The course has evidently also provided many participants with their first opportunity to investigate, document and present on their teaching and related interests, along with some confidence to engage in SoTL activities. This bodes well for the development of these university teachers in terms of transforming their worldviews of teaching and learning and innovating their practice on an on-going basis. Ultimately, this is potentially good news for students from the points of view of being immersed in valid, relevant and engaging teaching, learning and assessment activities.
The research findings also raise a number of important considerations for higher education institutions, for example, quality teaching, curriculum development, staff development, workload implications, and the place of SoTL in universities, along with how it is both supported and valued. A key concern lies with universities not only having a view on the nature and place of SoTL for their institution, but also having a strategy for how this might play out in practice. This research paper makes it clear that the academic staff who responded to the survey, although being ‘time poor’, were generally very positive about their experiences in the Negotiated Project and indicated interest for on-going engagement with SoTL as part of their work. From a workload point of view, then, it is important for universities to elucidate how and through what mechanisms they can support teaching academics to incorporate SoTL perspectives and activities into their academic work. This includes mentoring opportunities to further develop experience and confidence in the area, plus (even interdisciplinary) team-based SoTL work to share the load and disseminate (and celebrate) the outcomes. It also extends to how SoTL work is both recognised and rewarded. Furthermore, an added challenge revealed in this paper was the tension between types of research – discipline-specific and SoTL-focused – and how these are variously valued within the institution. If SoTL can lead to evidence-based, scholarly outcomes that foster transformation and innovation in teaching and learning, then universities need to consider how they might articulate the value and place of SoTL-type investigations in amongst other forms of investigative activity.

Overall, the re-engagement via the survey with several cohorts of participants of the Negotiated Project in University Teaching has been very illuminating. It is gratifying to see the way the course has helped shape the outlooks and work of teaching academics, many of whom are in the early phase of their careers. Does the richness of the SoTL outcomes from the Negotiated Project mean that involvement in formal training programmes like the Graduate Certificate is the key to SoTL engagement by universities? It would be disingenuous to suggest so for a variety of reasons, but it does beg the question of what other sorts of activities would support the sorts of significant developments and outcomes that have been highlighted in this paper.

References


Appendix 1 – List of Negotiated Project in University Teaching Final Report

Titles

The following information is a list of titles of projects that were submitted as Final Reports in from 2008 to 2010:

- External students and the university experience: Do they attain the same graduate qualities?
- On reflection: Learning to teach, learning to learn.
- Does size matter? Enhancing student engagement and learning in a large mental health course.
- Teaching project management principles in an online environment.
- Assessing student engagement from students’ perspectives: An empirical study.
- Internationalisation of Australian urban and regional planning education.
- Capturing their interest: Maximising the potential for student engagement.
- Evaluation of the effectiveness of simulated role-plays and forms for documenting patient interactions as teaching tools in a first year pharmacy course.
- Using simulation to teach work organisation and people management skills in an undergraduate nursing course.
- Maximising the value of continuing professional development.
- Constructively aligning ‘Culture and Disputing’; a course in the Master of Mediation and Conflict Resolution programme.
- Tutoring strategies to engage first year students in the transition to university learning: The students’ perspective.
- How well do Australian universities assess their students?
- Student-centred learning in adult education and higher education: One concept or two?
- Occupational therapy identity: Perceptions of first year students.
- Engaging undergraduate nursing students in lectures delivered via videoconference across two regional campuses.
- Connecting student design practice to design research through a critical reflection framework.
- Adaptation experiences of international pre-service teachers: An Australian case-study.
- The roles of extrinsic factors in a community of inquiry model of e-learning.
- Assessment feedback, what do students find helpful?
- Strengthening teaching and learning in the social sciences through looking beyond disciplinary boundaries: A case study from the University of South Australia.
- Obstacles to success: Student failure of repeated first year courses in higher education.
- Developing and assessing competencies in a new masters level course on fetal echocardiography and evaluating these assessments using Revised Blooms’ Taxonomy.
- How do first year occupational therapy students rate the degree to which perceived anxiety negatively impacts on their performance in skills demonstration assessments: A pilot study at the University of South Australia.
- Curriculum design to enhance the work readiness of Australian psychology graduates.
- Fostering citizen architects and designers; a critical reflection and investigation into how architectural and design education might be challenged with a deeper democratic purpose of inclusion.
- Feedback and student engagement: A conceptual framework.
- Safe to feel vulnerable: The emotional space of the doctoral supervisory relationship.
- Reducing attrition rates of PhD students who enter without research experience.
- ‘Not by PhD alone’: interpreting doctoral student engagement in research education.
- Teaching gendered violence through engaging with the personal domain of social workers: Possibilities and Implications for Social Work Education.
- Allocating Tertiary Students for Group Work: Methods and Consequences.
- The TESOL Researchers Group in the School of Education: Engaging with relevant research cultures.
- Risk versus benefit: the ethics and politics of feminist social research.
- Doing it with mirrors: Reflecting on reflection and its role in Clinical Legal Education.
- Development of teaching materials to aid new academics.
Appendix 2 – Survey questions

1. Approximately how many years (full-time equivalent) have you been teaching in higher education?
   - Option 1: Less than 1 year
   - Option 2: 1-2 years
   - Option 3: 3-5 years
   - Option 4: 6-9 years
   - Option 5: 10 years or more

2. What is your highest completed tertiary qualification?
   - Option 1: Bachelor degree
   - Option 2: Master degree
   - Option 3: Professional doctorate (e.g. Doctor of Education, Doctor of Business)
   - Option 4: Doctor of Philosophy
   - Option 5: Other

3. An objective of EDUC 5124 is to facilitate the development of a theoretical or data driven topic of your own interest in learning and teaching in higher education. Was the Project Report you completed for EDUC 5124 your first experience in researching learning and teaching with a view to developing your work into a conference paper or journal publication in the area of learning and teaching?
   - Option 1: Yes
   - Option 2: No

4. Did you end up taking your completed (or further developed) EDUC 5124 Project Report to an external audience after the course finished?
   - Option 1: Yes
   - Option 2: Not yet, but I plan to
   - Option 3: No and I currently have no plan to

5. If 'yes' to the previous question, please indicate the format of the developed EDUC 5124 paper. (You can choose more than one.)
   - Option 1: Internal report or paper (non-refereed)
   - Option 2: Conference (non-refereed paper)
   - Option 3: Conference (refereed paper)
   - Option 4: Journal article (refereed paper)
   - Option 5: Other

6. Are you actively supported by your line manager(s) in your School to research your teaching / teaching-related topics?
   - Option 1: Yes
   - Option 2: No
   - Option 3: Unsure

7. What are the greatest barriers for you to research your teaching / teaching-related topics in your current position? (You can choose more than one.)
   - Option 1: Little time due to competing demands
   - Option 2: Inexperienced in researching learning and teaching
   - Option 3: Inexperienced researcher in general
   - Option 4: Lack of confidence as a researcher in learning and teaching
   - Option 5: Actively discouraged in your School to research teaching / teaching-related topics

8. Of all of the barriers you listed in the previous question, which one is the most significant for you? (Open text response.)
Appendix 2 (cont.)

9. What would be some enablers for you to research your teaching / teaching-related topics in your current position? (You can choose more than one.)
   - Option 1: Recognition of workload to include research time for researching and publishing in learning and teaching
   - Option 2: Opportunity to work with an experienced research mentor in learning and teaching
   - Option 3: Being part of a team to research learning and teaching
   - Option 4: More experience in researching learning and teaching
   - Option 5: Assistance from academic librarians to find relevant literature on learning and teaching

10. Of all the enablers you listed in the previous question, which one is the most important for you? (Open text response.)

11. Briefly, what does the ‘scholarship of teaching and learning’ mean to you? (Open text response.)

12. Do you see a strong link between EDUC 5124 and the notion of the ‘scholarship of teaching and learning’?
   - Option 1: Yes
   - Option 2: No
   - Option 3: Unsure

13. Please identify the main benefit(s) you got out of undertaking EDUC 5124 Negotiated Project in University Teaching. (Open text response.)
Human Trafficking Of Children: A Meta-Ethnography Of Literature

Margarite Russell Ponce de Leon
Master of Arts (Social Work)
Asian Seminary of Christian Ministries
Makati City
margarite.russellponcedeleon@facebook.com

Marie Grace A. Gomez, Ph.D, RGC
Special Education Area, College of Education
University of the Philippines-Diliman, Philippines
marie_grace_gomez@yahoo.com

Abstract

This research presents a meta-ethnography of literature that concerns human trafficking of children. It investigated on significant refereed-research articles that are found on Google Scholar and EbscoHost. The themes of the articles published delved on: the prevalence of human trafficking among children in various countries, prostitution of human trafficking victims, social justice and legislation, and needs and intervention of children who are victims of human trafficking. It is noted that researches on intervention primarily focused on government support. Recommendations include the creation of qualitative and quantitative researches on psycho-emotional intervention that can be done by those in the helping professions.

Keywords: social worker, human trafficking, intervention

Introduction

One of the most heinous crimes considered in the 21st century would be human trafficking. Mass media have reported various incidences of human trafficking and most its victims have been crying out for justice. No one knows the exact number of those victimized by human trafficking as there are still a lot of crimes that are unreported. Those who are victimized by this crime are often abused by people of their own nationality or country of origin. It is said that every country in the world is affected by human trafficking. This crime has to be put to an end but there seems to be too much work to be done to solve this issue. It takes a lot of multi-government intervention and co-operation to stop this crime. With this at hand, social workers have a big role in assisting its victims.

Social workers are tasked to assist human trafficking victims to receive intervention services. They are mandated to give assistance to people who are in need. The victims can be referred to agencies for further support. Critical incidence stress debriefing is necessary to enable the victims to cope with what has happened to them and help them move on. Counseling services are given by the social workers in order to address various concerns and enable to victims to make meaningful choices and life plans.

Social workers are supposed to accompany the victims to the police and give repatriation assistance, whenever necessary. They arrange for shelter and travel documents for the victims. They escort the victims to the police and court hearings as needed. Other intervention services are given as deemed necessary. Noting these tasks, the social workers face a tall order of helping human trafficking victims get justice and eventually receive rehabilitation.

The United Nations Office on Drugs and Crime (UNODC) defines human trafficking as a crime against humanity that involves recruiting, transporting, transferring, harboring or receiving a person through a use of force, coercion or other means, for the purposes of exploiting them (UNODC, 2013).
Children who are victims of human trafficking are considered to be at risk. They are faced with the possibility of physical harm, having emotional problems like post-traumatic stress disorder, depression and other problems. Having extreme difficulties experienced in life at a young age, they may not be able to endure the problems they face. Given this, suicide is inevitable.

Noting these, it is important to have relevant intervention for children who are victims of human trafficking. Intervention given should be documented so that best practices can serve as models to human-service providers that include social workers, guidance counselors, special educators, psychologists and psychiatrists. It is important that intervention services be documented in research so that there would be a guide on what works in the field. This paper attempts to content-analyze researches published in refereed journals and make recommendations on what is lacking in the literature.

**Significance of the Study**

This research helps the social workers and other helping professionals identify the nature of human trafficking, the legislative mandates to diminish this problem and trends in intervention practices. Through this, best practices can be detected and applied in the field. Policy makers will be able to draft standardized intervention protocol for children who are victims of human trafficking.

**Research Objectives**

This research aims to provide a meta-ethnography of literature on human trafficking of children.

**Scope and Delimitation**

This research focuses on document analysis of research on children who are victims of human trafficking for the past 10 years. Only refereed-journal articles were included in the study. Themes of the articles were identified and analyzed through meta-ethnography. It does not delve on meta-analysis as not all articles are quantitative in nature. Articles on Google scholar and EbscoHost were utilized.

**Methodology**

This study is purely qualitative in nature. This type of research is concerned primarily with how people see and understand their social world. It can provide a more in-depth approach to analyzing data, beyond statistical data. It utilizes meta-ethnography, a useful method for synthesizing research for developing models that interpret findings across multiple studies (Atkins, Lewin, Smith, Engel, Atle, & Jimmy, 2008).

This study identified researches on children who are victims of human trafficking. A synthesis of the articles is presented.

**Results and Discussion**

Human trafficking has been a point of discussion in many research articles. A search using Google scholar identified a total of 538,000 articles on this topic. On the other hand, Ebscohost has a total of 9,218 articles on the subject matter. Of these, there are 126,000 and 1,227 researches on children who are victims of human trafficking that can be identified through Google scholar and Ebscohost respectively.

**Themes of Articles.** Articles concerning human trafficking of children include the following themes: the prevalence of human trafficking among children in various countries, prostitution of human trafficking victims, social justice and legislation, and needs and intervention of children who are victims of human trafficking. It can be observed that the articles have a lot of research foci.

**Human trafficking in various countries.** Human trafficking victims come from both first and third world countries. Human trafficking of children is described as “forcefully tearing them away from their homes” (Breuil, 2008). For example, a total of 100,000 children get victimized by human trafficking every year in the United States alone (Walts, 2012). Every year, several hundred children are victimized both internally and across the border to India, Pakistan, Malaysia and Middle Eastern countries and they work as child laborers or sex workers (Hoque, 2010; Ghosh, 2009). Human trafficking is likewise a problem in North American countries.
and in Europe (Gozdiak and Collett, 2005; Boston, 2012). The articles on human trafficking in various countries narrate how children are victimized and where they are sent.

**Prostitution of human trafficking victims.** Children who are victims of human trafficking are not spared from prostitution (Grover, 2007). More than 600,000 women and children are coerced into prostitution via human trafficking every year (Dunne, 2012). It is said that regulation of prostitution in some Asian countries increased the incidences of human trafficking among children in brothels that are permitted to operate (Legg, 2012). Commercially coerced sexual activities and forced marriages are often done to children who are victims of human trafficking (Deane, 2010; Annitto, 2011; Ghosh, 2009).

**Social justice and legislation.** Various countries have created measures to mitigate this problem. The Philippines’ Anti-Trafficking of Persons Act of 2003 of the Philippines provides legal basis for the protection of women and children against human trafficking (Sison-Arroyo, 2008). Iran has attempted to create laws that protect children from human trafficking within the context of Islam (Fehresti, 2010). Albania’s National Anti-Trafficking Strategy of 2001 and other instituted laws increased the capacity of police staff and empowered its regular citizens to combat human trafficking (Nurkic-Kacapor, 2011). Creating consistency among national and local laws minimized human trafficking among children in the United Kingdom (Bokhari, 2008).

**Needs and intervention of children who are victims of human trafficking.** Children who are victims of human trafficking coerced into prostitution display atypical sexual behavior and are subjected to institutional care (Nijhof, Scholte, Burk, Engels VanDam, Veerman, 2012; Alvarez and Alessi 2012). The creation of a sex trafficker registry minimizes the incidences of children being forced into prostitution (Boston Legal Counsel and Prosecution, 2011). The creation of a National Call Center wherein victims can access help toll free is an avenue for support (Lange, 2011). Psychotherapy is reported to help children, who are victims of prostitution, who are prey to human trafficking (Kleinscmidt, 2009). Access to social services, local government opportunities and legal counsel are described to be intervention in most articles (Pierce, 2012; Okekch, 2012; Bokhari, 2008).

**Synthesis and Conclusions**

Articles on human trafficking of children mainly delved on the prevalence, legislative support, needs identification and service intervention. It was observed that the type of child trafficking cases is limited to the discussion on prostitution. Based on the articles searched, there is a lack of literature on specific socio-emotional and educational intervention. For example, trained social workers, counselors and psychotherapists can easily create different kinds of psychological intervention. Critical stress de-briefing activities are regularly done by such professionals but are not discussed in the literature. Education-wise, special education teachers who handle children at risk are trained to create therapeutically-based lessons. Children who are victims of human trafficking fall under this category of exceptional children. These activities are often done at the school or community level but are not documented in formal literature. As such, these endeavours are done by most of the helping professionals but are not recognized in scientific literature.

**Recommendations**

With the dearth of literature on psycho-social intervention for children who are victims of human trafficking, it is recommended that programmes, intervention strategies and therapeutically-grounded lessons created by personnel in the helping professions be documented. These professionals should write about how they address the needs and concerns of such clients. Qualitative and quantitative studies can be utilized in order to identify effective intervention strategies for children who are victims of child trafficking. Hopefully, the creation of research in this field would enable more governmental units to address psycho-social issues of child trafficking.

**References**


Sub-theme B: Global Issues, Institutional Policies & Prof Development in Education


Case Study – Awareness Of ‘Fair Dealing’ Among Learners of Sunway College Johor Bahru

Krishnaveni Sritharan
Diploma & Financial Program Department
Sunway College Johor Bahru, Malaysia
venis@sunway.edu.my

Mangair karasi Manickam
Hospitality & Information Technology Department
Sunway College Johor Bahru, Malaysia
mangairk@sunway.edu.my

Abstract

The judiciary has long protected the academicians’ literary work in conjunction with the Copyright Law. The knowledge and awareness of Copyright Law is becoming increasingly important especially with the use of technology. These growing concerns have demanded effective policies to be developed especially in the use of fair dealing as a defence to the infringement of the law. This paper evaluates current legal developments in these areas. The case study was carried out with the learners of Sunway College Johor Bahru. The study employed a quantitative method to analyse the learners’ understanding on the knowledge and awareness of Copyright Law and its defence ‘fair dealing’. The study shows that there is a need to have more comprehensive knowledge and awareness on the law and its defence. This is to ensure the observance of the protection of the author’s truly original work and their creative ideas.

Keywords: Copyright Law, Fair Dealing

Introduction

Intellectual Property (IP) rights influences investments decisions in the country (Davis & Withers, 2009). Eighty-six per cent to 100% of investors believe that a strong IP protection will enhance investment in the country (WIPO, 2007). Copyright law is a component in the IP rights. The Copyright Law in Malaysia is governed by the Copyright Act 1987 and the Copyright (Amendment Act 1997) (Anderson, 1997). It was further enacted in 2000 after the agreement with Trade-Related Aspects of Intellectual Property Rights 1994. It was further amended in 2002 and 2003 (Khaw, 2008). The Copyright Law in Malaysia was enacted among others, to protect academicians’ literary work in conjunction with the rapid expansion of technologies (Lam Soon (M) Bhd v Forward Supreme Sdn Bhd & Ors, 2001). The habit of obtaining data, cutting, copying and pasting a data seem to be a common practice among learners. This habit has also hindered educators from creating literary work (Lathrop & Foss, 2000). This growing concern has demanded effective policies to be developed in the area of copyright especially in the use of fair dealing as a defence to the infringement of the law.

Part of or most of the academicians’ profession will be preparing lectures, manuscripts, essays, articles, etc.; these are constituted as literary work in accordance to S3 of Copyright Act 1987. S7(2) of the Copyright Act 1987 protects all literary work that is original and it must be written down, recorded or reduced to a material form. Originality was further elaborated that the author must utilise his own effort to originate the document (Hyperion Records Ltd v Swakins, 2005). The work will lose its originality when the author mindlessly copies another’s work (ZYX Music GmbH v King & ors, 1995); furthermore, it becomes an infringement of the Copyright Act 1987.

However, in order to do academic literary work, it is required to refer to other learned educators for reference. While doing this referencing, the violation of the act can be committed by the faculty, staff and even students. Copyright Act is infringed when the literally work is used without the consent of the author. The usage includes
the activity of sale, reproduction of the work, communication of work in the public, distribution, commercial rental of the copies or importation of the work in an article (S13(1) Copyright Act 1987).

The rationale behind the copyright law is to encourage progress in arts and science to benefit the public (Bowyer, 1996) and, secondly, to ensure fair return from the creators of literary works (Sayre v Moore, 1785). Thus, for ensuring continuous creativity of work from the learned educators to the public, a defence of ‘fair dealing’ has been utilised. The lack of awareness and knowledge in the defence is arising significantly. This paper aims to weigh the awareness and knowledge of the Copyright Law among the learners in Sunway College JB in respect of ‘fair dealing’ as a defence.

The doctrine of fair dealing

Fair dealing has been portrayed as a defence to the infringement of the Copyright Act 1987. S13(2)(a) of the Act provides that anyone doing any acts by way of fair dealing for the purposes of non-profit research, private study, criticism, review or reporting current events will not breach the Act.

Malaysia is an infant with regard to copyright law; thus, there are very few case laws on the Copyright Law and its defence (Munir, 1997). Moreover, the Act does not define fair dealing. It has been left to the judiciary to guide the public on the defence of fair dealing by utilising the decisions upheld in other commonwealth countries. The guidance indicates that to call for the defence; firstly, the judiciary will consider the purpose of the work prescribed. The purpose is prescribed under Section 107 of the United States Copyright Act 1976 which provides four factors to be considered when determining the fairness of the dealing; i) purpose and character; ii) nature of the copyright work; iii) amount utilised, and iv) value of the copyright work.

Secondly, the intention and motives of the person infringing the rights will be considered (Hyde Park Residence Ltd v Yelland & Ors, 2000). Thirdly, the proportion of the work taken in relation to the whole work will be scrutinized (Independent Television Publication Ltd v Time Out Ltd & Elliot, 1984). Fourthly, the effect on the exploitation or commercial value of the copyright will be measured (Fraser - Woodward Ltd v British Broadcasting Corp, 2005). The fifth rule is if any industry practice or custom reproducing copyright work will not be a defence (Banier v news Group Newspaper Ltd, 1997). Finally, the defence of fair dealing is available for both publish and unpublished work (Beloff v Pressdram Ltd & Anor, 1973).

The judiciary will decide if the copyright work was utilised for a ‘private study’ or ‘non profit research’. ‘Private study’ is suggested as a study undertaken by the person claiming the defence. It does not include any teacher preparing materials for use by their students (Longman Group Ltd v Carrington Technical Institute Board of Governess, 1991). ‘Non-profit’ research means a research undertaken by the person claiming the defence for a non-commercial reason; the defence will not be available if it earns profit (Creative Technology Ltd v Aztech Systems Pte Ltd, 1997).

In the light of the defence, ‘criticism’ is referred to an assessment or estimation of the qualities and character of a work (Sillitoe & ors v McGraw-Hill Book Co UK, 1983). In addition, ‘review’ is referred to as a work of appreciation or criticism of the copyright work (De Garis & Anor v Neville Jeffress Pidler Pty Ltd, 1990). Merely publishing extracts of a confidential meeting is not a criticism or review (Ashdown v Telegraph Group Ltd, 2002). ‘Reporting of current events’ covers any events, regardless of its importance and interest to the public. Letters from the Duchess of Windsor to her husband after the death of the duchess were considered history and not current events (Associated Newspapers Group Plc v News Group Newspapers Ltd & Ors, 1986). The court held that it was a mere presentation of the letter and not reporting of current event. Furthermore, historical interest is not defined as reporting current events (S6 (3) UK Copyright Act 1956).

The shadows of doctrine of fair dealing

The knowledge and awareness of Copyright Law is becoming increasingly important especially with the use of technology. In a blink of an eye, people can cut, copy and paste the document and the utilisation is made without the permission of the owner (Negroponte, 1995). Though it seems like an infringement of the Copyright Law, the defence of ‘Fair Dealing’ can come towards their rescue. Studies show that learners have difficulty in understanding the copyright law and its defence. The technology further complicates their comprehension in making an ethical decision (Ribble & Bailey, 2005). Most of the incidents written below show the lack of knowledge and awareness of the law and its defence.
The defence of fair dealing was not invoked in University of London Press Ltd v University Tutorial Press Ltd (1916) when the University Tutorial Press published the exam papers written by the examiners appointed by the University of London Press. However, in Williams & Wilkins.co v United States (1973), the government libraries distributed, free of charge, 200,000 copies of a ten pages long article from the medical and scientific journals belonging to Williams & Wilkins Company. The court held that the defence of ‘fair dealing’ protects the library, as the library is a public non-profit government library that is allowed to make the photocopies.

A photocopy shop was copying the publisher’s book without obtaining the permission of the publisher. The copied books were sold to the students, (Books v. Kinko’s Graphics Corp, 1991). The shop was claiming the defence of fair dealing; the courts ruled in favour of the publisher. The court went on further to elaborate that the copying would reduce the market of the books, (Kaplin & Lee, 1997) and awarded $510,000 in statutory damages as well as legal fees.

In 2005, the University of Minnesota made a study on their graduate students who were utilising the ‘Fair Use Analysis Tool’. It is a tool developed by the University to produce a better understanding of the law and its defence. However, the finding showed that the tool actually affected the graduates’ understanding on the law and its defence. The tool further confused the graduates (Greenhow, 2008).

Methodology and model

This study will focus on knowledge and awareness of Copyright Law and its defence ‘fair dealing’. The study employed a quantitative method by utilising questionnaires. The questions emphasised on the learners’ understanding on the knowledge and awareness of Copyright Law and its defence ‘fair dealing’. The questions were derived from the literature. A quantitative method was selected to collect the data required for the study. This survey design allows for standardisation of information presented with consistency in the language. This method has reduced biasness that may occur while gathering data. This survey design is an advantage for obtaining data from small sample (Leedy & Ormrod, 2001).

<table>
<thead>
<tr>
<th>Categories</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1 (DipBA)</td>
<td>20</td>
</tr>
<tr>
<td>Category 2 (DipIT)</td>
<td>24</td>
</tr>
<tr>
<td>Category 3 (DipHM)</td>
<td>10</td>
</tr>
<tr>
<td>Category 4 (CAT)</td>
<td>34</td>
</tr>
<tr>
<td>Category 5 (A-Levels)</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 1: A brief summary of respondents from different programmes participating in this study

The population target for the study was learners of Sunway College Johor Bahru. The stratified random sampling was employed in the study (Polit & Beck, 2004). The researchers grouped the population in accordance to the courses and then randomly selected the respondents. The names were randomly selected using the every fifth from the class attendance list until 100 had been selected.

Once the surveys were concluded, each category of the data was analysed. To compare and analyse the data, common categories were gathered by grouping them together. Finally, the entire data set was reviewed and compared. The survey will assist the researchers to analyse the students’ knowledge and awareness of Copyright Law and its defence ‘fair dealing’.

Research objective

The study has established the following areas:

i) the analysis of the knowledge of copyright Law among the learners in Sunway College Johor Bahru
ii) the analysis of the awareness of copyright Law among the learners in Sunway College Johor Bahru
iii) the analysis of the knowledge of fair dealing among the learners in Sunway College Johor Bahru
iv) the analysis of the awareness of fair dealing among the learners in Sunway College Johor Bahru

The study has focused on two areas; i) the knowledge and awareness of the Copyright Law, and ii) the knowledge and awareness of fair dealing. Knowledge is referred to as learners who have acquired appropriate range of understanding of the concepts (Palmer, 1998). The ultimate drive that stimulates knowledge is
awareness (Madsen 1996). The comprehension of the Copyright Law and its defence ‘fair dealing’ were demonstrated in this study. Therefore, the aim of the study is to understand the function and purpose of Copyright Law and fair dealing in literary work and evaluate the learners’ knowledge and awareness on Copyright Law and fair dealing matters in academic.

Findings and conclusion

The findings are divided into four categories; i) knowledge of the Copyright Law, ii) awareness of the Copyright Law, iii) knowledge of ‘fair dealing’, and iv) awareness of ‘fair dealing’. The percentage of knowledge of the copyright law, awareness in copyright law, knowledge of the ‘fair dealing’ and awareness in ‘fair dealing’ are calculated based on the number of responses over the total number of respondents available in the category.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Category 4</th>
<th>Category 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of Copyright Law</td>
<td>54%</td>
<td>87%</td>
<td>51%</td>
<td>50%</td>
<td>43%</td>
</tr>
<tr>
<td>Awareness of Copyright Law</td>
<td>41%</td>
<td>75%</td>
<td>45%</td>
<td>40%</td>
<td>35%</td>
</tr>
<tr>
<td>Knowledge of ‘fair dealing’</td>
<td>51%</td>
<td>69%</td>
<td>50%</td>
<td>47%</td>
<td>40%</td>
</tr>
<tr>
<td>Awareness of ‘fair dealing’</td>
<td>38%</td>
<td>65%</td>
<td>43%</td>
<td>44%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Table 2: Level of awareness and knowledge on the Copyright Law and fair dealing by the five groups of respondents

All the respondents showed a general understanding of the Copyright Law. However, only 20% of the respondents had the understanding of fair dealing as a defence. These respondents were mostly from Category 2. The general knowledge and awareness of the Copyright Law is higher than its defence ‘fair dealing’ among the respondents. The respondents seem to have higher knowledge of the Copyright Law and fair dealing than the awareness of it. Some respondents indicated that they had some knowledge of the law but were not aware that ‘fair dealing’ is a defence. The awareness level was determined on the responses derived from the respondents’ degree of knowledge. They understood the various infringements of the Copyright law, but they did not demonstrate the understanding that fair dealing is a defence for the infringement.

When asked whether the respondents were aware that they could not copy and paste from any literary work to their assignments, 55% responded that they had the knowledge of it. This indicates that the respondents possess knowledge of the Copyright Law. However, when the question asked if they were aware that all literary work used needed to be referenced, only 20% answered positively. This indicates that they lack the awareness of the Copyright Law.

On the question whether the respondents were aware that they could use a photocopy of the book for personal use, it generated high level of knowledge in fair dealing. However, when they were asked if the photocopied books were sold to other students, 75% of the total answered positively. This indicates that the respondents lack the awareness on fair dealing.

Category 5 respondents demonstrated low knowledge and awareness of the Copyright Law and fair dealing compared to the other categories. Category 5 respondents were A-level students and the Copyright Law was not included in their syllabus. Category 2 respondents seem to score higher than the rest in both knowledge and awareness of the Copyright Law and fair dealing. Category 2 comprised Diploma in Information Technology students and the Copyright Law was included in one of the syllabuses in the E-Business module.

Thus, the study shows that there is a need to have more comprehensive knowledge and awareness on the law and its defence. This is to ensure the observance of the protection of the author’s truly original work and their creative ideas. People do not want to infringe the law if they are aware of the law and have the knowledge of the law.

Limitation

The study conducted was limited to two distant views of copyright, the Copyright Law and its defence ‘fair dealing’. In addition, the survey of the study was applied only to Sunway College Johor Bahru learners in limited time frame. There were difficulties in collecting meaningful information from incomplete surveys.
As the survey was done internally, it focuses only on the learners of Sunway College Johor Bahru. It can be extended to students of other programmes from other universities too. Many of the respondents have claimed they possess the knowledge of Copyright Law and its defence. However, the respondents contradict themselves while answering duplication questions in the survey for accuracy.

**Future research**

The study concentrated on the Copyright Law emphasising on the defence ‘fair dealing’. However, there are many grey areas in the Copyright Law that could be explored. The legislation has provided room for ambiguity in the interpretation of the law. A broader study on the implementation and interpretation of the Copyright Law is needed.

Moreover, the study focused only on the literary work of the educators. The Copyright Law also covers artistic work, musical work, derivative work, broadcasting, etc. Further studies can be prepared on the different types of copyright protection and its utilisation.

Furthermore, this study is done only as a case study using the learners of Sunway College Johor Bahru as the sample. It would be very interesting to gather the perceptions of the knowledge and awareness of the Copyright Law and its defence from learners as well as educators from other institutions of higher education.

The researchers have observed that the respondents contradicted themselves while answering questions that are in duplication or reworded. This could lead to biasness in the result.

**References**


Associated Newspapers Group plc v News Group Newspapers Ltd (1986) RPC 515


Beloff v Pressdam Ltd & Anor (1973) 1 All ER 241


Creative Technology Ltd v Aztech Systems Ltd Pte (1997) 1 SLR 621, CA


De Garis & Anor v Neville Jeffress Pidler Pty Ltd (1990) 95 ALR 625

Fraser-Woodward Ltd v British Broadcasting Corp (2005) 64 IPR 187


Hyperion Records Ltd v Sawkins [2005] 3 All ER 636; [2005] EWCA Civ 565

Independent Television Publications Ltd v Time Out Ltd & Elliot (1984) FSR64


Longman Group Ltd v Carrington Technical Institute Board of Governors (1991) 2 NZLR 574


Sayre v Moore (1785) 102 ER 139n


University of London Press Ltd v University Tutorial Press Ltd (1916) 2 Ch 601

Williams & Wilkins Co. v. United States, (1973) 487 F.2d 1345


An Exploratory Study: Why Are Business Courses Popular In Malaysia?

Norkhadirah Anuar  
School of Business Studies (Perak Campus)  
Tunku Abdul Rahman University College, Malaysia  
norkhadirah@acd.tarc.edu.my

Audrey Malenee  
School of Business Studies (Perak Campus)  
Tunku Abdul Rahman University College, Malaysia  
audreymm@acd.tarc.edu.my

Abstract

This research attempts to determine the factors that contribute to the popularity of business courses in tertiary education. It explores the reasons why students choose these courses. Studies have found that students choose business courses because they give individuals the tools and awareness to hone their business strategies. Furthermore, it has also been found that business courses have significant effects on the standard of living; the quality of an individual’s life; and the environment in which they live in. Students also believe that business courses are soft skills oriented and tend to choose them since they perceive it is easier to pass these courses. However, studies into why business courses are currently popular among Malaysian students are still lacking. The sample for this research was 40 students taken randomly from 259 students enrolled in various business courses. These students were invited to respond to a survey which consisted of 14 open-ended questions. In this research, three major factors which are thought to contribute to the popularity of business courses, i.e. socio-economic status, cultural factors and peer influences, are discussed.

Keywords: business, courses, popularity, tertiary education

Introduction

Implementation of the Malaysian Economic Transformation Programme (ETP) has initiated a new driving strategy for economic growth by focusing on the quality of human talents, knowledge and skills to complement and accelerate business in Malaysia. According to the Malaysia Employment Outlook and Salary Guide 2012/2013 by Kelly Services, the year 2013 will show promising growth for the service industry, and, indirectly, there will be an increase in hiring of personnel with skills that can handle reception, administration, sales and marketing, and accounting tasks. Therefore, business courses are fast becoming popular among students since the content and context of these courses may be applied by the students to address challenges and demands in any company. The Ministry of Education of Malaysia noted that students are motivated and learn best when they understand the relevance of what they are studying and opt for courses which could provide rich opportunities for real-world learning experiences. According to Zocco (2009), course selections by students could depend on internal factors, such as personal interests, level of the course subject matter, intellectual challenges and rigors, and demand on time, or the selections could depend on return expectations, such as grade potential, assistance in achieving career goals, enjoyment of the classroom experience, and performance in the learning environment. In this research, three major course selection factors which are thought to contribute to the popularity of business courses, socio-economic status, cultural factors, and peer influences, will be discussed.

Socio-economic Status (SES)

Socio-economic status (SES) is the social standing or class of an individual or group and is often measured as a combination of income, education, and occupation (Winkleby et al. 1992). Nores (2007) noted that lower SES students will tend to have lower educational expectations. In general, parental income could impinge on the
selection of courses and college more than the education level or occupations of parents (Robert, 2011). A study by Kantrowitz, (2012) noted that students from lower income families are more attracted to non-profit institutions as the tuition fees are much lower than profit-driven institutions. Joseph (2010) found that there is a significant positive relationship between cost and institutional choice decisions. Similarly, Collins, Kenway, and McLeod (2000) also found that students from low SES groups tend to have limited choices for post-educational institutions. In India, where SES is in a developing phase, MBA courses are fast becoming popular among students. Studies have shown that they are highly popular because many colleges can provide placement, and they also assure high job demands for graduates (Ritesh & Mitesh, 2012). Students may also choose to study business because their parents are involved in business, or they come from a long line of business people (Sharma, 2004). Based on all of these studies, it is believed that a student’s choice of business courses may, in part, depend on their SES.

Cultural Factors

The ethnicity of students could also be one of the factors contributing to the popularity of business courses apart from SES. According to Hofstede’s (1984) theory of cultural dimensions, humans in different cultures react based on beliefs and values in their environment. There are five cultural dimensions: power distance index, individualism (the degree to which individuals are integrated into groups), masculinity (the distribution of emotional roles between the genders), uncertainty avoidance index (a society's tolerance for uncertainty and ambiguity), and long term orientation. In his study on the cultural dimension of Malaysia, Hofstede (2003) found that Malaysians scored more on the power distance index and uncertainty avoidance index, which he interprets as a society that is highly rule-oriented with laws to reduce the amount of uncertainty. Even though this theory is often applied in international business, it could be used in other environments that are influenced by cultures as well (Gray, 2005). Chang (2007) in her research also stated that Asian cultures lean more towards interdependence and authoritative parenting styles because they believe that a child’s decision may reflect the family as a whole. According to van Der (2003), cultural values of certain ethnic groups are observed to influence a student’s choice of courses. As such, in societies that have high power distance and uncertainty avoidance index, they would rather go with the flow and opt for courses that have been around and seem safer as they are tried and proven to have commercial value.

Peer Influences

Cultural factors are found to have a long relationship with peer influences in course selection (Martsolf, Dieckman & Heiss, 1998). During the formative adolescent years, peers are arguably more important than parents, teachers, and counselors, and the peer-influenced decisions of youth can have long-lasting consequences (Coleman et al. 1966). Pimpa (2003) also found that peers exert a strong influence on students’ choices of courses. Many students who step into tertiary institutions are relatively young usually ranging from eighteen to twenty-four years of age (Ken, 2010). This is the group of youths who make decisions based on the majority’s choice as they believe that their peers truly understand their situation and are more in line with the latest demands of the society (Gutknecht, 2007). Thus, if a majority of their peers opt to take up business studies, they would do so too, in order to remain in synergy with their peers as well as creating satisfaction for themselves. According to Milem (1998), a few studies have concluded that the impact of peer groups on students’ college experiences could shape student’s attitudes and beliefs as well as students satisfaction.

The Present Study

The present study attempts to determine the factors that contribute to the popularity of business courses in tertiary education. It will explore the reasons why students choose these courses. As such, in our attempt to search for answers, the two research questions (RQ) underpinning this study are:

RQ 1  Why are business courses in tertiary education popular?
RQ 2  Are the choices of business courses influenced by socio-economic status, cultural factors, and peer influences?

Methodology

As this is an exploratory study, the qualitative research technique was chosen as it enables the understanding of the research problem from the perspective of the students. Surveys consisting of a combination of 14 open-
ended questions were handed out to respondents. Open-ended questions were used to generate insights and ideas of how the respondents viewed business courses and their motivations in selecting a business course as their field of study (Glen, 1999).

Year one students from various business-related programmes were selected as samples. The respondents were selected from a population of 127 accounting students, 101 business studies students, 12 e-commerce & marketing students, and 27 marketing students. The sampling technique used in this research was probability sampling. In order to increase a sample’s statistical efficiency, the type of probability sampling chosen was stratified sampling (Donald & Pamela, 2006). Students were segregated into several mutually exclusive sub-populations or strata. This process was then followed by a random selection of 10 respondents from each stratum. A total of 40 students were selected for the sample. The informed consent of the students was obtained and they were told they could leave the study at any point. The students were also assured that all data collected from them would be kept private and confidential and only viewed by the researchers.

Prior to the handing out of the survey questions, students were briefed on the purpose of the survey. The surveys were handed out and collected at the end of the class. After that, the responses were read and re-read until commonalities appeared. These commonalities were then grouped under several identifiable themes.

Results and Discussions

In an attempt to answer RQ1, the results from the survey questions were used.

RQ 1 Why are business courses in tertiary education popular?

There were four identifiable themes which contributed to the popularity of business courses in tertiary education. The themes consisted of: relevance to ambitions; influence of significant caretakers or family; attractiveness of job prospects; and rate of enrolment.

Relevance to ambitions

It is interesting to note that 22% of respondents joined business courses because of their own choice. They specifically chose to be enrolled in these courses because there was a relevance between the content of the course and their ambition. For instance, one of them wrote:

“It was truthfully from my own decision to choose a business course as my ambition is to be an accountant. So, if I learn accounting now, I can achieve my ambition.”

Likewise, another student commented:

“I have always wanted to start my own business. I know that if I wish to be a successful entrepreneur, I need to learn the basics first. That’s why I personally chose to study business.”

Discussion

When students decided independently on their choice of courses to be enrolled in, they were guided by their interest, zeal for a particular course, and the relevance of the subject matter of the course with their plans for the future. As such, they made their own choice to enrol in courses that provided them with a possibility to realise all of these. This supported research done by Zocco (2009) as he found that students selected courses based on internal factors or return expectations, such as relevance of course subject matter, assistance in achieving career goals, and also personal interest.

Influence of significant caretakers or family

The decision to enrol in a business course may be guided by family or significant caretakers. About 28% of the respondents noted that their family, especially parents, influenced their course selection. In addition, it was also mentioned that family members, who are involved in the business industry, served as an inspiration to these students. They often chose business courses as a result of these family members. For example, one of the students commented:
“My parents, especially my dad, played an important role in helping me to decide which course to join in college. He was with me throughout the entire process of finding, analysing, and selecting courses in tertiary institutions.”

Another student also wrote:

“My father is a Senior Production Executive, and he inspired me to be a successful person in the business industry. That’s why I chose to study business.”

Discussion

Students perceived their caretakers to be capable and experienced individuals who might have a better understanding of what is best for them. Furthermore, caretakers are usually the ones who financially support their education. As such, most caretakers take on a more proactive role in a student’s course selection process. This is reflected in the research done by Chang (2007) who found that Asians have authoritative parenting styles and children are seen to be living in an interdependent environment.

Similarly, students perceived family members, especially parents, as role models. There might be a tendency to follow the path of a successful family member. Thus, they might choose to study business because their family is involved in it. This supports the study by Sharma (2004) which stated that students who came from a long line of business people or who had parents who were involved in business were most likely to choose a business course.

Attractiveness of job prospects

Thirty percent of the respondents wrote that they were interested in business courses because they perceived the business industry to be an attractive and lucrative sector which offered them a promising career path. It was noted by the students that they perceived there would be a strong demand for business-skilled graduates in Malaysia. For instance, one of them wrote:

“There are more job opportunities in the business sector. Therefore, studying a business course will help guarantee a better job with a good salary for me.”

Similarly, another student wrote:

“Businesses around us are mostly growing rapidly and more companies are being formed. This means that there would be more jobs created and these companies will need more business graduates.”

Discussion

Before enrolling in any tertiary educational institutions, students analyse the demands of the job market. In order to secure employment, they select courses that enable them to acquire relevant knowledge and skills. This finding supports the research done by Kelly Services (2012) which stated that Malaysia will show a promising growth and there will be an increase of hiring personnel with administrative, management and business skills.

Rate of enrolment

Sixteen percent of the respondents wrote that the high enrolment rate of business courses was one of the reasons they chose to take up the course. They perceived it to be the safest choice to make, as the more popular a course is, the higher the possibility of it being in demand. For instance, one student wrote:

“I believe that business courses are popular among other courses because as from my observation, generally the highest enrolment of students will come from business courses. So for me, it is safer to study business courses as it seems popular and should most likely be the demanded course by the working world.”

Discussion

It has already been noted that Malaysians are risk-adverse people as they scored more on the uncertainty avoidance index based on Hofstede’s (2003) research. Students may perceive that the high enrolment rate must
be caused by the increasing demand for graduates of such courses. As such, students would rather go with the flow and opt to study popular courses because it does not project much risk as the career paths are already known and there is a projected demand.

RQ 2 Are the choices of business courses influenced by socio-economic status, cultural factors and peer influences?

**Socio-economic status**

Sixty-three percent of the respondents wrote that SES had influenced their choices of business courses. Students are more attracted to business courses after being inspired by their family as well as the lucrative job prospects which promises a better income. For example, one of the students wrote:

'I also want to have a business like my family as this is the way for me to get high income and I could manage my business with freedom.'

Discussion

Family SES has a slight influence on the development process of an individual, especially in job determination. Students who are born in a family that owns a business have seen for themselves how it has supported their financial needs. As such, students are motivated to pursue business courses in order to inherit their family’s business. This further supports the study by Sharma (2004).

**Cultural factors**

Only 33% of the respondents wrote that cultural factors had also influenced their choices of business courses. It is found that the students’ ethnicity has an influence on their ambitions. These students grew up in an environment where ethnicity was seen to govern their choices in life. For instance, one of the students wrote:

'My parents influenced me to enrol in this college and choose the course because they said it is easier to take the same course with my sister as I can refer to her. Besides that, they said people in my ethnic group are naturally talented with business and mathematics. That is why I chose this course.'

Discussion

Cultural values reflect a student’s ability to synthesize and extract valuable lessons from their culture for a better life especially in terms of their future career. In the values themselves, cultural norms are created and it is often perceived by the students as a guide when making decisions. Therefore, it supports the research found by van Der (2012) that students’ choice of courses can be influenced by the cultural values in certain ethnic groups.

**Peer influence**

It was thought that students would have been influenced by their peers. However, only 4% of the respondents wrote that they sought only their peers’ advice to gather information about courses. They specifically mentioned that the opinions of their peers did not influence their choice of courses. This is supported by the comment written by one of the students.

'I am not influenced by my friends as I chose this course based on my interest; however, I did ask my peers for help on getting information about this course.'

Discussion

According to Pimpa (2003), peers were commonly seen as a preferable source of reference and were able to exert a stronger influence on youths. Contradicting this, the research results found that the selected respondents were not in favour of basing their course selection on the opinions of their peers. Furthermore, as there was no evidence for peer influence, it contradicts research done by Gutknecht (2007) who described youths as being easily influenced by their peers who are perceived to understand them better.
Conclusion

There are many Malaysian tertiary educational institutions that offer business courses (Schumpeter, 2011). It is a popular choice among students, as it is relevant for their ambition, as well as offers the opportunity to be employable in a highly demanding job market. As such, attaining marketable business knowledge and skills is necessary. In addition, caretakers and family and the high enrolment rates in tertiary educational institutions were seen to play a significant role in influencing students to select business courses.

Socio-economic status and cultural factors positively reflected the students’ choices when selecting their course of study. This was supported by the various studies done by researchers such as Ritesh & Mitesh (2012) as well as Gutknecht (2007). However, peer influences were not reflected in the results of this research as we did not find evidence that contributed to their selection of business courses.

The results of our research may not hold true in all tertiary educational institutions. However, as this is an exploratory research, it may be of value and within limitations to explore the perceptions of students as well as gain some understanding on why business courses are popular. Further research could be done by using a larger sample that includes students from other colleges or universities in Malaysia. This may enable us to gain more insight into students’ perceptions as well as uncover possible variables that may have influenced their selection of business courses.

Acknowledgement

We would like to acknowledge the contributions of Frances A. Bryant and Choy Siew Chee to the successful completion of this paper.

References


Kantrowitz, M. (2012). Who Graduates College with Six-Figure Student Loan Debt?. Student Aid Policy Analysis.


Career Education for Filipino Children In Conflict With The Law

Marie Grace A. Gomez, Ph.D., RGC
Special Education Area, College of Education
University of the Philippines-Diliman, Philippines
marie_grace_gomez@yahoo.com

Abstract

This study identifies career education priorities for Filipino children in conflict with the Law (CICL) through qualitative and quantitative data. Quantitative data was obtained from answering standardized tests such as the translated Brainard Occupational Preference Inventory and Culture Fair Intelligence Test. Qualitative data was obtained through individual interviews. Data yielded that there is a need to identify career priorities in specific occupations and assistance should be given in job placement.

Keywords: career education for children in conflict with the law, occupational preference, career

Introduction

Children in conflict with the law (CICL) have law violations. Violations can be petty such as snatching someone’s purse to more grave offenses like murder. Their cases merit trial in courts. Despite their offenses, they are not treated like adult offenders. The United Nations prohibits incarceration of minors with adults (United Nations Office on Drugs and Crime, 2006). Furthermore, they should receive educational programs in order for them to reform. The goal of their detention in youth centers is rehabilitative rather than punitive.

Philippine laws protect the rights of CICL. Republic Act 9344 (Juvenile Justice and Welfare Act of 2006) protects the right of CICL and other children at risk. Children who commit criminal liability who are above 15 years old but below 18 years old are exempted from criminal liability but are subjected to an intervention program. Under the law, educational institutions are supposed to work together with families, community organizations and agencies in rehabilitation and re-integration of a CICL through individualized educational schemes. Children who are detained in rehabilitation centers must be provided the opportunity to continue learning under an alternative learning system with basic literacy programs or non-formal education accreditation equivalency system (Philippine Congress, 2006).

It is important that the CICL be immersed in transition programs as they will be released from the Center after they have served their sentences. Transition programs enable the CICL to prepare for work and other plans such as continuing their studies.

This research identifies intelligence profiles and career preferences of the CICL in a youth center through standardized testing. These are needed in career planning for CICL. Intelligence profiles were derived from taking the Culture Fair Intelligence Test (CFIT) as this test does not need comprehension of the English language. Standardized tests on achievement levels were not given to the research participants as some of them have not been to school or have spent only a few years in school. This phenomenon may affect their ability to comprehend questions phrased in English, particularly number sentence problems in Mathematics and questions in Science. Career preferences are work options that are identified through standardized career inventories. Interviews on career aspiration; what influences the research participants to choose such career; future plans after their stay in the Center were also identified and how the Center can help them when it comes to choosing their careers were also probed. Career aspirations are the desired work of the research participants. These are derived from non-standardized means such as interviews.
Research Participants

The research participants were 120 CICL (6 females and 114 males) under the custody of a youth reception center. The center has fewer female clients than males which is common among youth centers that cater to CICL (Corrado, Odgers & Cohen, 2000; Cabilao, 2004; Fields & Abrams, 2010). Their educational needs are provided for by the Silahis ng Katarungan (SIKAT). Silahis centers are public SPED schools located in the Division of City Schools Manila (De Torres, 2008). The SIKAT provides for the educational needs of the clients in the Center on regular working days.

Research Design

This research made use of a mixed design. Quantitative and qualitative measures were done in order to get data. In the first phase of the study, the researcher gave the Culture Fair Intelligence Test and the Brainard Occupational Preference Inventory (BOPI) to the research participants. Means and standard deviations of IQ scores while frequencies and percentages of the responses in the BOPI were computed for. Analysis of Variance was done to test significant difference between IQ and career preferences of the BOPI.

The second phase of the study involved an interview of the research participants. The questions posed were on their career aspirations, influences to their chosen career, plans after being released from the Center and their perception on what the Center can do for their careers. General trends of responses of the second phase were collated and frequencies and percentages were computed for.

Research Instruments

The researcher used the Culture Fair Intelligence Test (CFIT) - Scale 2 by Cattell to identify intelligence quotient (IQ) levels. This test was chosen as all the participants of the study use Filipino as their language of communication at the center.

The Brainard Occupational Preference Inventory (BOPI) is a standardized test that yields scores in six broad occupational fields for each gender. These fields are Commercial, Mechanical, Professional, Esthetic, and Scientific. Only males answered items on the field of Agriculture while females answered only Personal Service. The test’s reliability ranged from .88 to .95 for males and .82 to .95 for females (Brainard & Brainard, 1991). Filipino translations were made available and were validated by the SIKAT teachers. This was done to ensure comprehensibility of the items.

IQ Profiles of the Research Participants

Career planning takes note of the skills, abilities and intelligence of an individual. In this research, only intelligence was measured through the CFIT Scale 2 as the research participants may have problems in understanding standardized achievement tests as there may be language issues. Below is the IQ profile of the research participants. In the absence of intelligence grouping of the CFIT-Scale 2, intelligence grouping for purposes of discussion is based on Terman’s (1983) classification and descriptive profile.

<table>
<thead>
<tr>
<th>IQ Range</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>164 and over (Genius)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>148-163 (Very Superior)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>132-147 (Superior)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>113-131 (Above Average)</td>
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<td>5</td>
</tr>
<tr>
<td>84-112 (Average)</td>
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<td>17</td>
</tr>
<tr>
<td>64-83 (Below Average)</td>
<td>72</td>
<td>60</td>
</tr>
<tr>
<td>51-63 (Low)</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>Below 52 (Dullness)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4: IQ Profiles

It can be observed that majority of the research participants are in the below average range. Following it are those in the low range. Research has shown that youth offenders with below average IQs were more susceptible
to committing crimes (Ward & Tittle, 1994; Moffitt & Stouthamer-Loeber, 1993; Chitsabesan, Bailey, Williams, Kroll, Kenning & Talbot, 2007).

**Occupational Preferences**

The BOPI identifies six dimensions of occupation sections, namely: 1. Commercial (jobs in accounting, clerical work, selling and business management), 2. Mechanical (occupations in machine design, machine operation, fine manual work and building construction), 3. Professional (medical work, legal and social work, educational work, personnel work), 4. Esthetic (art in form and color, verbal expression, architecture and decoration and music), 5. Scientific (statistical research, physical research, biological research, chemical research), and 6. Agricultural (farm and gardening, small animal raising, forestry, animal husbandry for males and domestic service, health service, community service and clothing for females). Table 5 presents the career preference of the research participants:

<table>
<thead>
<tr>
<th>Career Preference</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>55</td>
<td>43</td>
</tr>
<tr>
<td>Professional</td>
<td>28</td>
<td>23</td>
</tr>
<tr>
<td>Esthetic</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Mechanical</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Commercial</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Scientific</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 5: Career Preference

The results of the BOPI showed that the Agricultural Dimension is the top career preference. Research has shown that this is also the preference of people in disadvantaged groups (Mullinix, Garcia, Lewis Lorents, & Qazi, 2002). However, in the section of career aspirations, the top career preference does not match career preference.

**Differences of IQ and Career Preference**

To test whether there is a significant difference between IQ and career preference, ANOVA was used as a statistical treatment. SPSS version 11 was used to generate the data. Table 6 presents the data.

<table>
<thead>
<tr>
<th>Career Preference</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 PROFESSIONAL</td>
<td>28</td>
<td>79.21</td>
<td>13.809</td>
</tr>
<tr>
<td>2 ESTHETIC</td>
<td>14</td>
<td>81.43</td>
<td>13.107</td>
</tr>
<tr>
<td>3 MECHANICAL</td>
<td>12</td>
<td>82.67</td>
<td>11.719</td>
</tr>
<tr>
<td>4 AGRICULTURAL</td>
<td>55</td>
<td>80.74</td>
<td>18.159</td>
</tr>
<tr>
<td>5 SCIENTIFIC</td>
<td>4</td>
<td>123.75</td>
<td>8.461</td>
</tr>
<tr>
<td>6 COMMERCIAL</td>
<td>7</td>
<td>81.60</td>
<td>13.740</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>82.16</td>
<td>17.276</td>
</tr>
</tbody>
</table>

Table 6: Difference in IQ and career preferences of the BOPI

The table showed the means, SDs of the different career preferences of the IQ scores across the different career preferences based on the BOPI. According to these data, SCIENTIFIC scored higher in this area ($M= 123.75$) and has the highest mean among the six groups. Variability is more consistent in SCIENTIFIC ($SD = 8.461$). This would imply that this group is more homogenous. Other groups have higher standard deviations as they were chosen by those research participants who are in the very low to high average range of IQ.

<table>
<thead>
<tr>
<th>Variable and Source</th>
<th>Df</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5</td>
<td>5.914</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>111</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Analysis of Variance for Test of Difference Among Groups
The table shows that there is a significant difference between IQ and career preferences of the BOPI, $F (5, 111) =5.914, p= .000$. The table shows the number of subjects, the mean, and the standard deviation of analytic skills for each cell. A multiple comparison (Scheffe) test indicated that the group difference accounting for the significant $F$ value was for the PROFESSIONAL with SCIENTIFIC ($p= .000$) but did not differ significantly with Esthetic ($p= .999$), Mechanical ($p= .995$), Agricultural ($p= .999$) and Commercial (1.000).

The research participants who chose Scientific also had high IQ scores. Other career choices were chosen by those who had lower IQ scores. The literature supports that academically gifted people or those with higher IQs would prefer to have more technical-scientific jobs (Stewart, 1999; Mei-Tang &Smith, 1999).

**Career Aspirations and Influences**

Career Aspiration was not tested via ANOVA as these are career preferences not mentioned in the BOPI, making the two sets of data incomparable. The following are career aspirations of the participants of the study:

<table>
<thead>
<tr>
<th>Aspiration</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction (construction worker, porter, painter, carpenter, welder)</td>
<td>35</td>
<td>29</td>
</tr>
<tr>
<td>Vending and Sales (Vendor, salesclerk)</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>Driver (Pedicab, Kuliglig, Tricycle)</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Police and Legal Occupations (Police, Lawyer)</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Health Services (Nurse, Doctor, Caregiver)</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Food Services (Farmer, Cook)</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Do not Know</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Others (Treasure hunter, jockey, attendant, band member)</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work</td>
<td>70</td>
<td>58</td>
</tr>
<tr>
<td>Work and Study</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Graduate from College</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Graduate from High School</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Vocational Training</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Do Not Know</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100</td>
</tr>
</tbody>
</table>

The participants who chose construction, vending and driving activities as their career aspiration said that they have previous experience in this field. This may account for the disparity between the top occupational preference and the top career occupation.

**Plans**

Majority of the CICL in the study look forward to their release and plan to change (pagbabagong buhay). *Pagbabagong buhay* entails promises not to commit any crime again. Only two CICL see themselves as reverting to the crime they committed after being released if they do not get a good job.

<table>
<thead>
<tr>
<th>Plan</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work</td>
<td>70</td>
<td>58</td>
</tr>
<tr>
<td>Work and Study</td>
<td>2</td>
<td>2</td>
</tr>
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<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Vocational Training</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Do Not Know</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100</td>
</tr>
</tbody>
</table>

Those who do not wish to pursue their education said that what they are learning in school is irrelevant. Two participants said that it is more profitable to engage in crime. One of them noted, “Tanggap ko na kung wala akong trabaho, babalik ako sa paggawa ng masama. Madali kasi ang pera kapag ikaw ay nandukot. Minsan, nakakuhak kami ng sixty thousand. Sandali lang kay lang, minalas lang kami ng aking pangkat na nahuli. Tanggap ko naman na mahuhuli ako. Kahit dalhin ako sa city jail o sa Muntinlupa. Ganito na talaga ako. Mahirap na ang magbago.” (I accept the fact that if I cannot find a job, I will steal again. Stealing is easy. There was a time wherein we stole sixty thousand. It was quick. However, our gang was caught. I accept that I can get caught again. This is me. It is difficult to change.).
Implications to Curricular Provisions and Career Education

It is important that the CICL be immersed in transition programs as they will be released from the Center after they have served their sentences. Transition programs enable the CICL to prepare for work and other plans such as continuing their studies.

Currently, the curricular offering of the SIKAT is on a non-graded scheme for CICL. This means that the students who are enrolled in the program cannot receive credit. Students still have to pass the ALS examinations in order for them to continue with their studies. However, SIKAT students are only given review classes if the ALS examination is a few months away. This results to poor performance in the ALS.

At present, the lessons of SIKAT sequentially follow what is prescribed by the Department of Education. The literacy program still follows this curriculum. However, there were research participants who mentioned that they need practical skills as they want to work as soon as they get released. The provision of having functional literacy and mathematics classes are needed for CICL who do not wish to go through the rigors of schooling. In the interview portion with the research participants, Ramon, said that he just wants to know how to read street signs well as his ambition is to be a pedicab driver. He wants to learn how to read maps so that he can bring his passengers to the correct destination (Gusto kong matutong bumasa nga mga karatula ng kalye). He also wants to learn basic skills in addition and subtraction so that he can give the right amount of change (Gusto kong matuto ang addition at subtraction para makapagsukli ako nang mayos). He said that he feels that there are times wherein he thinks he got cheated when it comes to money matters because he cannot add and subtract well.

There is a need to have identification of career interests and abilities of CICL in order to help them plan for their future careers. Licensed guidance counselors have to be placed in such centers in order for the CICL to receive career counseling and career assessment. At present, the SIKAT center has welding classes and this serves as the only transition program. However, based on the results, there were research participants who want other programs.

Implications to Assessment and Setting of Educational Priorities

Assessment is an integral part of educating students with special needs. Special Education recognizes the individual differences of people. Therefore, setting of priorities must be individualized. Because of the limited number of teachers of the SIKAT, assessment and the creation of an individualized educational plan (IEP) is not done. Teachers also say that the enrollment is fluid. Their students who get released or transferred to other institutions cannot be given a one year program.

Noting this problem, an educational portfolio of each SIKAT student can be made. This can also be done for all CICLs serviced in other centers. Assessment of all CICL referred to the center can be done upon their entry. Since the social workers in the Center conduct intake interviews and case reports, the teachers can also assess skills of the students for them to set educational priorities. These priorities are needed when drafting the student’s IEP. Assessment results and the IEP can be placed in the educational portfolio of the student and be passed on to the next teacher. With this, education of the student continues whether the court decides on center transfer, sentence to the city jail or be released. The next teacher can do follow-up assessment and create new priorities, based on the student’s progress.

References


Enhancing the Student Learning Experience Through Student Engagement: An Institutional Approach

Stuart Brand
Centre for Enhancement of Learning and Teaching
Birmingham City University, UK
stuart.brand@bcu.ac.uk

Luke Millard
Centre for Enhancement of Learning and Teaching
Birmingham City University, UK
luke.millard@bcu.ac.uk

Abstract

This chapter describes a three level approach to engagement of students as academic partners in curriculum design and delivery. The first focus is on partnership work at individual or small group level manifested through Student Academic Partner development projects, delivered in three academic years since 2009, and a range of mentoring initiatives. The chapter discusses the significance of process of partnership as well as emergent product; data is also presented relating to participating students, uptake of opportunities and resources required. The second level relates to the redefinition of programme teams to incorporate comparable numbers of academic staff and students working together in curriculum design and enhancement activities as part of a university-wide redesign project. Here consideration is given to the expectation of participants as well as the lived experience of collaboration. The final layer concerns institution level partnerships to underpin culture change, notably partnership between a university and its students’ union, with consideration of the impact on both. Examples are provided for each of the levels together with lessons drawn from experience of implementation and possibilities for further development to meet the challenge of seeking both wider and deeper impact.

Keywords: student engagement, learning community

Introduction

Student engagement is currently a fashionable topic in the UK Higher Education sector. There are a number of reasons for this with perhaps the increase in student fees from 2012 central among them. However the term student engagement itself has been subject to a variety of interpretations. Following an extensive literature review for the Higher Education Academy, Trowler (2010, p. 3) states that:

“Student engagement is concerned with the interaction between the time, effort and other relevant resources invested by both students and their institutions intended to optimise the student experience and enhance the learning outcomes and development of students and the performance, and reputation of the institution”.

This definition introduces the idea of commitment from both students and institutions and indeed of benefits for both.

Student engagement – the institutional context

The work described in this paper pertains to the time from 2007 to the present. In 2007 a number of key developments were identified as necessary by a new team in the centrally located Centre for Enhancement of Learning and Teaching (CELT). A new Learning and Teaching Strategy was developed, following wide consultation across the institution. This enabled each of the six faculties in this post-1992 university to set detailed actions around seven university-wide goals thus achieving a degree of local ownership. One of those goals pertained to the need to gain a high level of student engagement with the learning process.
The initial aim of the student engagement activities at Birmingham City University (BCU) was to create a greater sense of learning community in a large metropolitan university of 24,000 students spread across eight campuses. There was at this point limited student or institutional aspiration for student engagement with a university-wide community. This context would typically translate into students attending a lecture and then returning to their extra-curricular lives off campus, with few becoming engaged with any other form of university activity. This was a concern for those at the University who wished to see students gain from a whole university experience and develop the skills and experiences that wider engagement might offer.

As a response to a consideration of this context, in 2008 the University embarked upon a student engagement programme, led through the CELT with a new, strong partnership with Birmingham City Students’ Union (BCSU). This partnership was both pragmatically and symbolically effective, offering new opportunities to reach students while demonstrating to all stakeholders a tangible commitment to new ways of working. The first output of this relationship with the Students’ Union resulted in the creation of the Student Academic Partners (SAP) scheme, which will be described later in this paper.

The policy background – partnership or consumerism

These developments are set against a rapidly evolving policy landscape. One of the first significant instances of a new consideration of the debate around the perception of the role of students in the new fee-paying UK higher education sector came in a report by the Quality Assurance Agency (2009). This was one of the first governance-based instances of the recognition that “co-production could bring numerous benefits”. It suggested that there may be a myriad of benefits from this approach which “could lead to increased learner satisfaction, reduced student anxiety and greater understanding of learner needs, increased satisfaction amongst academic staff, and improved educational outcomes”. The report also identified a number of reasons as to why the discourse of students as consumers had weaknesses and would in fact “throw the system off balance”. It drew upon the work of McCulloch (2009), which argued there were at least eight difficulties from such a consumer-based approach, which included increased student passivity, failure to encourage deep learning and the compartmentalisation of education as a product not a process. From an engagement perspective McCulloch also felt that consumerism would lead to students seeing themselves as individuals and increase competitiveness at the expense of generating the community. More recently Gibbs (2012, p. 11) has explored the notion of students as consumers through a series of interviews with leaders in the sector and noted that: “while there is a sense in which students are being treated as consumers of a product, institutions with good and improving NSS scores often have initiatives that engage students as co-producers of knowledge, or partners in an educational enterprise”.

The status of student engagement has also been formally recognised within the governance of the UK Higher Education sector through the introduction by the Quality Assurance Agency (QAA) of a new UK Quality Code for Higher Education on Student Engagement (2012). This code, against which all universities will be judged during their institutional inspections, states that student engagement: “covers two domains relating to:

- Improving the motivation of students to engage in learning and to learn independently;
- The participations of students in quality enhancement and quality assurance processes, resulting in the improvement of their educational experience”.

The Quality Code actually goes further and explicitly identifies an expectation of higher education providers, namely that: “higher education providers take deliberate steps to engage all students, individually and collectively, as partners in the assurance and enhancement of their educational experience”.

As Trowler’s (2010) review of student engagement literature identified “policy levers such as funding frameworks, systemic assessment schemes and quality frameworks could have a significant impact on encouraging, or discouraging, an emphasis on student engagement at an institutional level”. She asserted that if quality mechanisms queried learning rather than teaching, it “would require institutions to focus on what students are actually doing, rather than on what the institutions are providing for them to do or not to do”.

The position of the National Union of Students (NUS) in this developing paradigm is of great interest as it, like students, staff and universities, has been on a journey to understand the new financial imperatives and the resulting relationship between government, students and the HE sector. The NUS has moved significantly from its traditional approach of holding universities to account to one of seeking to work in partnership with universities to benefit its members.
The new NUS Manifesto for Partnership (2012) is a significant step in this development of position and acknowledges that “student engagement as a policy priority is relatively recent”. It has significant implications for the NUS: “we are moving beyond a narrow focus on the validity of various systems of student representation and instead describing concepts linked to student identities and the potential of individuals to influence their environment”.

Perhaps it is not surprising that the NUS manifesto rejects the notion of student consumerism. “The students as consumers model assumes that the experience of attending higher education is something that can be packaged and sold” and negates the ability of students to influence their environment and learning. Further, it states that “conceiving of students as consumers is a thoroughly impoverished way of describing the relationship between students and their institutions, which ought to be one of mutual trust, care and respect”.

A new term has also entered the language of student engagement through the “What works? Student retention and success” programme co-ordinated through the Higher Education Academy. The resultant publication (Thomas, 2012) considered the evidence of seven national research projects into student retention and success and concluded that “belonging is critical to student retention and success”. The evidence from the projects “firmly points to the importance of students having a strong sense of belonging in HE, which is the result of engagement”.

Belonging is not something that a consumer of a service naturally feels when they purchase a good or a service, but it is something that can be generated through a shared partnership activity. Thomas believes that belonging is closely aligned to academic and social student engagement and defines belonging as “students’ subjective feelings of relatedness or connectedness to the institution”. Thomas highlights the work of Goodenow (1993) which described belonging in an educational environment as “Students’ sense of being accepted, valued, included and encouraged by others (teachers and peers) in the academic classroom setting and of feeling oneself to be an important part of the life of the class”.

Strategic approach

In this paper we identify a three layered approach to the development of student engagement at BCU. We will describe the initiatives and developments undertaken and conclude with some thoughts about future developments. The layers reflect a need to view development at the levels of: individuals or small groups; programme teams; and institution level.

Early steps and institutional level change

The new University Learning and Teaching Strategy, developed in 2007, suggested a move towards partnership working with BCSU. This departure was a significant one as relations had been previously couched mainly in terms of the Union reacting to the performance of the University and perhaps rather adversarial. Chapman et al (2013) describe traditional methods of securing the student voice: “debates between unions and universities can result in a reaffirming of the traditional ‘them and us’ position (Grattan & Meakin, 2012), defended by structures and memorandums which can often lead to stalemate and political toing and froing (Bell et al., 2006). The emergence of a collaborative approach, adopted by BCSU and BCU, is now becoming more common and seen in much more of a positive light (Greatrix, 2012). Despite this approach moving to becoming good practice, the debate continues within the SU movement itself looking at the implications of partnership and collaboration. “What does an SU put at risk by working more closely with their institution, what does the SU potentially gain by doing so and which argument carries more weight?”

This extract reveals the key concern at the early stage of partnership development, namely that any Students’ Union might be taking a risk by pursuit of partnership; the risk would be a diminution of the ability, through conventional representation mechanisms, of the SU to hold the university to account. Another way of presenting this dilemma might be to recognise it as the challenge implicit in moving from reactive to proactive approaches. Indeed it could be suggested that this manifestation of partnership at institutional level furthers the move away from notions of students as consumers and towards roles as active partners, as discussed by Ramsden (2008). The appointment of a Membership Engagement Manager (MEM) to the staff of the SU provided important continuity for emergent partnership working. Such continuity is always likely to be a critical issue, given the short periods of office for which union officers serve. The appointment was the first full-time post named in this way in the United Kingdom and has provided real catalysis for a wide range of initiatives, to the extent that an agreement was reached during 2010 that the university would second the MEM to work in CELT for a
Project work as a vehicle for developing the learning community

Student satisfaction surveys and other internal measures had indicated that the University’s locally based students, which formed a majority, did not see the University as place in which they belonged or wished to remain beyond their need to study. CELT decided to respond to this view through the creation of a new initiative that sought to generate aspects of that sense of learning community. The flagship project within this area was one that sought to bring students and staff together in real partnership to work on educational development projects. Thus, the Student Academic Partners (SAP) scheme was born with this overarching aim of creating a greater sense of learning community at BCU. Students would be paid to work alongside academic staff to create innovative new approaches to learning and teaching that would improve the learning experience, not only of those students employed, but also of the wider population of students studying the programmes being enhanced. The decision to pay students was based on practice observed elsewhere, in such places as Copenhagen Business School. They had identified that many students needed to have paid employment and thus in order to make such opportunities available to all, rather than only to those who could afford to work on a voluntary basis, payment was necessary.

Through the partnership with the Students’ Union, students were encouraged to apply for SAP projects, whilst CELT targeted academic and support staff. The partnerships approach to recruitment of participants symbolised the collaborative approach to project generation. Our philosophy here was to, through the reduction of a ‘them versus us’ attitude; deliver a new approach to localised educational development initiatives. The SAP scheme is now entering its fourth iteration and has seen over 300 learning and teaching projects proposed over that time. Of these just over 200 have been funded for employment of students. The projects fall into three broad categories, the last of which is tailored to meet the pressing need of the University in that particular year:

- Curriculum focused - development of new content, learning resources or assessment approaches
- Learning Community building focused - consultation, survey, networking projects
- Professional practice focused - employability, employment, professional practice and placement experience

A key aspect of the scheme is the layers of benefits that it offers. At a programme level it improves the learning experience for all those students studying in future years. It also assists the student partner involved in the project as not only do they receive financial reward, but also they develop a suite of employability skills such as project management, leadership and presentation skills. For the academic staff member it offers them an opportunity, through partnership, to pursue a development which may have been previously hindered through lack of time. However, there is a further invaluable benefit: that of contemporary relevance obtained through the fresh insight and different perspectives of one or more current students. These claims are supported by the quotes presented below:

“The project was extraordinarily engaging and exciting and through it I have acquired many skills that I am confident will benefit me greatly in the future”  Student comment

“Seeing the students’ enthusiasm for the project and the archives reignited my own enthusiasm and has inspired me”.  Staff comment

The Student Academic Partners scheme is now widely recognised and has been influential in design of initiatives by a number of other universities across the sector. It has also led, at the time of writing, to the Student as Partners Change Programme, collaboration between the Higher Education Academy and BCU.

The key question for us at BCU concerns the extent to which the SAP scheme has influenced the organisation. We will return to this later but we do believe that we have changed thinking to the extent that working in partnership with students is now seen as not only optimal in securing internal discretionary funding, but also as the best way to secure enhancement of provision. Three years on, the SAP scheme remains in great health and has also now started to spawn other student engagement approaches. Learning from the scheme has shown the great strength to be drawn from peer to peer based activities. We have chosen, for example, to invest in peer...
mentoring to build on the academic partnership projects and in direct response to demand from faculties. The resultant Student Academic Mentoring Programme in its first pilot phase saw the employment of over 60 mentors across the University supporting a range of activities including teaching assistant roles, tutorials, resit preparation sessions and skills workshops. A further call for 2012-2013 has led to 23 programme or faculty based initiatives being supported and we expect further expansion. An interesting feature of this work has been that much of the supporting material and induction work has been developed and delivered by students themselves.

In addition, the SAP scheme has shown the value of the sharing of ideas across programmes and disciplines; crucially the desire to create the learning community means that students should be engaging with more than just a programme based experience. Feedback from SAP projects where this took place has been very encouraging and therefore the University is now committed to the expansion of the SAP scheme into a new internally funded stream which will encourage larger, cross-disciplinary projects and break down barriers between different parts of the university. We believe that these projects, whilst developing excellent products, will be as valuable for the processes and the relationships they develop. If through the creation of these new broader relationships we can enthuse academic staff and students with a wider vision and understanding of the university experience, then the progress to the creation of the learning community will take a major leap forward.

The move towards developing the learning community has not been without its challenges. There was a suspicion within the University that these student engagement activities would only attract a particular elite selection of student enthusiasts, sometimes referred to as the “usual suspects”. Some staff questioned whether we could reach out beyond the first class student who was known to the tutor and was always at the forefront of developments. A further question was whether participating students would see their involvement as related to a wider community development or simply focus narrowly on their individual funded project. Research into the first three cohorts of SAP participants provided some interesting insights into these issues. Evidence showed that it was not merely those usual high flying suspects who participated in the SAP scheme; the majority of participating students, 49%, achieved strong academic attainment. However, detailed analysis showed that the largest proportion of students, 49%, achieved upper second class grades, with 26% gaining a lower second class mark and 20% achieving a first class grade.

Fig. 1. Performance of BCU students during their time of employment as Student Academic Partners

The question around student attitudes and participation in the learning community was also explored. Analysis of the same students, during their time as Student Academic Partners, revealed that 67% strongly felt part of the learning community within the University and this was supported by figures that showed 67.5% strongly believed that they had equality of partnership within their relationship with the staff working on their project.
Students’ contributions to curriculum design activity allow for a very important set of experiences and perspectives to be considered as part of the design process; yet such engagement does not necessarily occur as a matter of course. To create a situation where students become engaged in a meaningful manner in curriculum design, we have found the need to build mechanisms and processes that have, as the default position, an expectation for student engagement not only to occur – but also to be evidenced.

Our approach of designing such mechanisms emerged from a pan-university curriculum redesign project we begun in 2008. Our original project, known as RoLEx (Redesign of the Learning Experience), was the vehicle through which we sought to use a Senate-mandated restructuring of the entire undergraduate portfolio (from a 12-credit module structure to a 15-credit module structure) to enhance the student learning experience through, for example, elimination of unnecessary complexity and redesign of assessment (Bartholomew, et al., 2010).

During the first iteration of the RoLEx project we learnt a great deal about how students engage (or do not engage) in curriculum design activity. We learnt that student aspirations for involvement in the redesign of their programmes were generally not well developed. Furthermore, programme teams tended to engage with students, and other stakeholders, mostly in a tokenistic way. We also came to realise that the curriculum design and approval process itself offered little by way of a mechanism to collect evidence of engagement with stakeholders. In short, our processes allowed for secure scrutiny of the end product of curriculum design (as represented by the definitive documentation) but little scrutiny of the design process itself.

As a consequence of our findings, BCU set about revolutionising its design and approval processes. We ran a four-year project to embed stakeholder (including student) engagement into curriculum design. Much, but not all, of the focus of our work was in the exploitation of technology to support the collection and representation of the student voice in the curriculum design process.

Of course, just ‘capturing’ and sharing student perception is insufficient; programme teams are required to demonstrate how they have responded to the student perspectives (or not – with a rationale, as appropriate). This new scrutiny of process, in parallel with scrutiny of product, has established a mechanism through which student engagement is built into the curriculum design process.

Software-supported solutions can only go so far though and we have recognised that we need to do more to encourage academics and students work together on curriculum design. By the time we got to the third iteration of the RoLEx initiative in 2011, we had developed strategies to encourage and reward such co-working.
hosted and ran curriculum design events in which programme teams were asked to attend with comparable numbers of students. This idea of insisting on student inclusion in the design teams was met with trepidation by some academics at first; but by the end of each of the days, we were hearing testimony from, previously reluctant, academics as to how useful the student perspective had been. For their part, students spoke of how positive they felt as a consequence of having been included. They felt a sense of empowerment in how their ideas were being taken on board and actioned.

Action cascading from discussion was not accidental or fortuitous; rather it came about as a consequence of central intervention. In order to support action, relatively small amounts of money (£1000) were made available to each of the staff/students teams so that their collaborative responses to curriculum challenges could be brought to fruition. We have cascaded this model to other areas of staff development provision (outside of the RoLEx project) and prefer to run all our bespoke development workshops on this basis - with programme teams only being able to access support where they include students as part of the team.

**Conclusion**

It has been the intention throughout this five year development period that cultural change would ensue; change that was no longer dependent on those usual enthusiastic suspects but was firmly embedded in mainstream process. There are, we believe a number of manifestations which suggest that we are part way on that important journey.

A key tenet from the outset was the nature of the relationship between the SU and university. In our view this is now significantly recast. Within the last year the SU has produced an academic manifesto, the first seen in BCU, which makes a major contribution to the quality enhancement work of the institution. In particular the SU is now emerging as a significant driver in our work to promote development of employability attributes and focus of development of students as individuals. The MEM and Union President (2012-2013) are also leading one of the HEA Students as Partners Change Programmes: their team, with strong university staff and student involvement, is working on an initiative entitled ‘New Student Conversations: from QA to QE’. This work seeks to revitalise old and invent new mechanisms for capturing student opinion. The team aim for a much wider range of student conversations within the whole quality enhancement agenda. Interestingly, there is great enthusiasm for this work from the University itself, with many staff believing that extant mechanisms such as Boards of Studies are tired and unproductive.

A further manifestation of the culture change we seek has been the growth in demand for student partnership working. In the table below we set out the variety of approaches now established;

<table>
<thead>
<tr>
<th>Partnership activity</th>
<th>Student participants</th>
<th>Funding</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Academic Partners Scheme (SAP)</td>
<td>Individuals or small groups working in partnership with staff</td>
<td>Students employed by SU (project funding to SU from University). Typical employment for a student is 70-100 hours in academic year</td>
<td>In first four iterations 216 projects funded across all faculties and some central services</td>
</tr>
<tr>
<td>Student Academic Mentoring Programme (StAMP)</td>
<td>Individuals or small groups working in partnership with staff to provide peer mentoring</td>
<td>Students employed by BCU as part of OpportUNIty initiative</td>
<td>60 students employed in 2011-2012 pilots. 21 initiatives funded across the University in 2012-2013</td>
</tr>
<tr>
<td>OpportUNIty – Collaborative projects</td>
<td>Groups of students and staff from more than one discipline collaborating in live projects with multiple beneficiaries</td>
<td>Students employed by BCU as part of OpportUNIty initiative</td>
<td>Initial call yielded 31 bids of which 21, involving the employment of a total of 131 students, have been funded in 2012-2013</td>
</tr>
<tr>
<td>HEA/BCU Students as Partners Change Programme (2012/13)</td>
<td>SU team with University staff members</td>
<td>Expenses only</td>
<td>Aim for major reform of student representation</td>
</tr>
</tbody>
</table>
Redesign of Learning Experience (RoLEx) development workshops | Programme teams defined as requiring comparable representation of staff and students | £1,000 made available to each participating team for short-term follow up | 43 programme teams participated in 2010-2011, each with full student participation

OpportUNity Student Jobs on Campus | BCU team participated in HEA Change Academy 2011-2012 | Expenses only | Aim to develop 1,000 student jobs on campus by 2015

| Table 1. Range of Student Engagement Initiatives at BCU |

These approaches have all grown from the initial development of the SAP scheme in 2009. Although they were developed by small steering groups in each case, they should be seen as response to emergent demand rather than merely attempts to impose such engagement activities on an unwilling population! One indicator of the extent of progress thus far is that the STAMP work and Collaborative Projects developments both were directly driven by students employed in CELT. These then are not developments for imposition, with students cast as passive recipients, but rather student-led partnership initiatives which have attracted management approval and faculty staff enthusiasm, evidenced by the quantity and quality of bids received. All parts of the University are engaged in the initiatives presented in the Table above and there is a contagious impact; whereas originally the staff who enthused about SAP developments in 2009 were a select group already known to be well disposed towards such work, others have now been infected. Often, the infection spreads just by colleagues perceiving the benefits accrued from such partnership work: this applies to staff and students alike.

Finally, we would claim that student-staff partnerships are now seen as a key feature of the University’s operation. In 2011/12 BCU reviewed its Corporate Plan and now includes an Objective “to be an exemplar for student engagement, working in partnership with students to create and deliver high levels of student satisfaction and graduate employment”. The inclusion of such an objective five years earlier may well have looked premature; now it appears to most as a natural next step arising from the partnership development work that has already occurred. We conclude with a quote from a senior member of academic staff in one of our faculties, the Birmingham Institute of Art and Design. A participant herself on the SAP scheme and witness to the impact the student engagement initiatives is having within her School, she concludes:

“...this SAPs thing has already started to infect ideas that are going on in the faculty about how we do define our relations with students .... Because we are stuck with this absolutely horrendous thing of customers which I think is so wrong. I think it could have a significance way beyond the SAPs project itself in that we are entering uncharted waters about how students view themselves and how staff operate in academia and it is really up for grabs.”

This seems to us a very reasonable summary of exactly what we are about.

**References**


QAA (2009), Rethinking the values of higher education – consumption, partnership, community? Quality Assurance Agency http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Rethinking-the-values-of-higher-education---consumption-partnership-community.aspx (last accessed 13 May 2013)
QAA (2012), *UK Quality Code for Higher Education - Chapter B5: Student engagement*
http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/quality-code-B5.aspx (last accessed 13 May 2013)

Thomas, L. (2012) *Building student engagement and belonging in higher education at a time of change, final report from the What works? Student Retention and Success Programme* Higher Education Academy
http://www.heacademy.ac.uk/what-works-retention (last accessed 15 May 2013)

Trowler, V (2010) *Student Engagement Literature Review*, Higher Education Academy, York
http://www.heacademy.ac.uk/assets/documents/studentengagement/StudentEngagementLiteratureReview.pdf (last accessed 15 May 2013)
Responding to Globalisation: Internationalisation or business as usual?

Viv Thom
Quality Enhancement and Student Success
Sheffield Hallam University. UK
v.thom@shu.ac.uk

Abstract

Universities worldwide are responding to globalisation, whether this means seeking international partnerships and collaborations, or in recruiting students in a global market. This paper will focus on the view that a successful internationalised institution is one where the business strategy does not dominate and where equal attention is given to cultural changes and the implementation of effective strategies which raise questions about the vision for global learning experience and aspires to transform the institutional ethos to foster international intelligence and a sense of belonging among all staff and students. The underlying rationale for such a framework is to place quality and equity at its core, a curriculum designed to enhance the value of intercultural and global perspectives and ensure the success of a diverse student body. This is not a one-size fits all solution, but seeks to be personalised, inclusive and devised in partnership with students.

Keywords: Globalisation, transformative, Internationalisation strategies, partnerships, institution

Introduction

Discussions about globalisation in higher education centre on the internationalisation of the curricula and student experience. Over the years the discourse in this area has changed as the impact of globalisation and the implications for educators have been reassessed. The current understanding promotes the idea that intercultural understanding, in our personal and professional relationships and as citizens is an essential literacy. There is clear evidence from employers that they seek graduates with such attributes, (Diamond et al, CIHE 2011) and widespread acknowledgement of a variety of benefits from the globalisation of higher education, ( Fielden 2007, British Council 2010). Yet pioneers who seek to internationalise the student experience are still, with some notable exceptions, struggling to influence the curricula, character and nature of UK universities. The question is how such an important agenda fails to attract the attention it deserves and how it can gain greater centrality.

Globalisation is a term first used in the 1960s to describe a global era; (Giddens 2002), though globalisation has always been a force of change in our lives. Evidence of movement and migration, travel, trading, wars and occupation can be found among all the ancient civilisations and cultural diversity was a feature of life for many people across all continents. The term is currently used to describe the complex economic, cultural, political and social changes that have grown in their significance through the increasing mobility of people, and services across an international context. The falling costs of global communication and of transport, create a perception of greater levels of interconnection across the world. Such developments have created more opportunities and choices; for communication, for study abroad and some would claim for the liberalisation of economies and democratisation of political systems.

We have come to expect a high volume of indirect, virtual contact with people with different cultural backgrounds, in our daily lives. Greater mobility and migration has also increased our experience of diversity within our own societies in workplaces and within families. Graduates should have the capacity to manage such relationships.

There is less physical and virtual distance between us and this requires that we reassess our relationship with the ‘other’. The world is literally in our hands; we can message, tweet, blog and Skype with our friends and families across continents from almost anywhere. Social media has a political dimension; expanding and directing street
demonstrations as seen in Egypt and Turkey and through online petitioning and campaigns. International events and global issues, disasters, wars and climate change, focus our attention through the media in ways that demand an ability to engage and understand. Politically it is increasingly clear that the relationships of nation states and national security transcend traditional borders and that international co-operation in any effective response to managing conflict or environmental issues can only be managed effectively on a global scale.

All this has happened rather quickly. Compare the experience of the world today with that of anyone who, like me, grew up 50 or so years ago, with limited access to information about the world. Privileged people had books and atlases and eventually, television. Teaching was limited to learning disembodied facts about explorers or missionaries, essentialising the lives of others, focussing on exotic differences; cooie hats and rickshaws, pagodas and igloos - about the production of rubber in Malaysia, for example. The power of colonialism to transform a country through cash cropping was taken for granted. The inequality and injustice, violence and slavery required to maintain empires were not questioned. Such limited and incomplete information fed a complacent ethnocentrism, political passivity, parochialism and racism. (Hall 1997).

Later TV and newspapers, publicised the struggles for independence in India, Africa and Eastern Europe, the rise of the civil rights campaign in the US, the peace and women’s movements and these liminal times changed the way we thought and behaved, the way many felt about our national identities; the values we passed on to our children and our students. Youth movements supported the evolution of egalitarian changes and we started to increase and share knowledge about the way the ruling classes in our countries still maintained a covert imperialism and began to challenge the acceptability of racism, inequality, totalitarianism, violent conflict.

Although wars, oppression and inequality, continue, segregation and apartheid has gone, there is more tolerance. We had a chance to make the world a better place; at the time it felt very significant. Nowadays I think we made a bit of a difference, but with all the opportunities communications technology offers; do young people have such ideas about their world and how they can influence the way we live now and in the future? Do they want to make the world a better place and how are we equipping them to be able to do this responsibly, ethically and effectively?

The Internet has transformed the way we communicate and learn, and promises to continue doing so with unstoppable speed. Our world horizons are borderless. We can, for a price, own portable devices which at the touch of a forefinger, share and generate information and ideas, yet it seems that most of us have more interest in using these to share trivial details about our lives with pictures messages, calling up instant directions, for online shopping and managing our affairs. Much on-line discourse is more self-promoting than concerned with developing connectivity with the world, though this may happen unintentionally. Global communication largely consists of music, porn, advertising, ‘news’ and visual jokes; rarely profound, transformative and often misinforming anyone who does not have the ability to discern unreliable information. The growth of social media may appear to empower individuals but appears in fact, to have enhanced the detailed knowledge governments and manufacturers of goods and services know about individual participants. This contributes to some of these becoming the fastest growing richest and powerful global organisations. whose value exceeds that of the GNP of a medium sized European country. We cannot engage properly with the volume of personal information we receive as individuals and if this was not overwhelming enough there is 24-hour news-stream with images and a cacophony of commentary from any part of the universe clamouring for our attention. This creates the illusion that we are better informed about the experiences of life and the cultures of others but what we are told is always filtered through heads of state, news correspondents and selected for us by news agencies. Many turn away from these distressing stories about events we see as outside our control. Some might say this is its Orwellian purpose (Herman & Chomsky 2008).

Universities have a vital role in preparing people to live and work in these changing communities, by supporting the development of a sophisticated understanding of these new and potentially complex, intercultural relationships. At the very least we would expect graduates to be competent in intercultural communication and in their professional practice behave ethically and with social responsibility. We should also prepare them for civic action and decision-making as the global managers of our future. Students should be encouraged to challenge taken -for-granted knowledge which is no longer useful and develop a sense of identity and self which can help them survive and engage with a world which shifts often and contains unfamiliar and ambiguous phenomena. (Crossley, 2001: 40, Lunn, 2008)

\[5\] Vodafone multinational deals http://www.bbc.co.uk/news/business-23933955
Sub-theme B: Global Issues, Institutional Policies & Prof Development in Education

There is overwhelming evidence from so many different directions of the need for and benefits of developing understanding of globalisation and you would expect to see it reflected in a critical role for higher education, of strategic importance and a feature in the curriculum everywhere, most rapidly in the education of the most privileged and wealthy. Yet in most universities these ideas struggle for recognition and compete for resources with other agendas. Research funding continues to be based on a mechanism which does not recognise or reward global activity. Both in the UK, some European countries and in the USA, general knowledge of geography, and world affairs current, past and present, of political and economic issues could be described as poor to illiterate. (Clarke, 2004, Sweeney 2013)

The conflicting and competing concerns of governments sometimes indicates hope for globally competent graduates who contribute to the civic well being of a nation. The British government commissioned research (Royal Geographical Society 2004-6), to assess evidence of undergraduates’ access to global perspectives in a variety of disciplines and departments in UK universities. A strategic plan to support development education with substantial funding was implemented in 2004-5. Quality benchmarks are provided at a national level to guide higher education institutions towards the enhancement of a global dimension in learning and teaching. (QAA 2011-13)

The competitive advantage of intercultural learning and linguistic skills gained from student mobility and other culturally challenging experiences is widely discussed. (CILT, 2005). There is clear evidence from employers and companies of all kinds that they seek graduates with global competencies; defined as being well organised, with the ability to embrace multiple perspectives, bounce back and take risks. In their report Global Graduates, Global Leaders, (Diamond et al. 2011), made recommendations for HEIs based on research with employers and universities. However in the UK there is little evidence that students or young people seek to develop such skills. Research suggests that less than 20% select courses that entail in study, work or volunteering in another country especially if this requires understanding or ability to speak another language. (Sweeney, 2013). and there has been a decline in the number of students participating in the European Commission's Erasmus exchange programmes. This has promoted recent government action to promote student mobility among university students. (British Council International Unit, 2011) While there are clear advantages from gaining first-hand experience of living, working and learning in another culture, curricular inflexibility, credit transfer issues and, funding are the main barriers along with lack of knowledge and perceptions about risk. With large numbers of international students currently studying in the UK and the cultural diversity of the resident population, there are also possibilities to explore through internationalisation at home. (Killick, 2012). This may attract more students; especially those who are less privileged, or may be unable to travel, at least for a long period of time. The excellent research project and action framework which was the work of the Scottish government and NUS Scotland (2012), demonstrated the impact of shorter placement opportunities.

Internationalisation as Business Development

The recruitment of large numbers of international students from other countries is used to measure internationalisation in universities by for example the Times Higher Education University global rankings. International Outlook, worth one third of the 7.5% total uses the diversity of the staff and student population as its evidence. The ability of a university to attract staff and students from all over the planet, alongside international research collaborations are critical to its success on the world stage and in many universities internationalisation simply means the business of attracting international students and sometimes developing ways to support their learning. With increasing competition for students in a volatile and unpredictable market and a concern for economic survival, the priority for university managers is mainly, and sometimes only, business development and economic gain. Higher education has become a global commodity bringing students to study across borders and with increasing opportunities for transnational study. There has been less attention given to ensuring that the student experience is global.

Strategic institutional responses to internationalisation certainly articulate goals for enhancing student experiences, often in strategy documents, embedded within the corporate plan which vary in their detail, range and the scale of their ambitions. Most strategies are concerned primarily with securing revenue and funding for

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6 Quality Assurance Agency. (2011-13) http://www.enhancementthemes.ac.uk/pages/search-results?indexCatalogue=all%2Dsite%2Dcontent&searchQuery=global&wordsMode=0

7 http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/methodology
transnational teaching. Typically international activities are seen as the specific responsibility of the ‘international office’ that works very closely with admissions, marketing and with key staff in individual Schools, Faculties or Departments. What results is a construction of the idea of internationalisation as being about managing and operationalizing a business strategy with some concern that overseas students have a good enough experience to support a strong marketing strategy.

International work, thus defined, is one dimensional and instrumental. Internationalising the student experience is hardly on the agenda and where this is the case the institution is failing to respond effectively to the demands of an increasingly globalised world. The largest share of financial investment, staff, resources, and strategic attention, in most so-called internationalisation strategies, is spent on recruitment and marketing. The student experience and quality of learning and teaching often comes a poor second. Internationalisation policies with institutional leadership specifically for international academic development which integrate learning, teaching, assessment and the student experience activities with business development are rare. When business development takes place without consultation with course teams, academics and administrators are left to create rapid response add-ons to meet the needs of another new group of students arriving without warning.

Typically this results in small-scale innovations and research projects, undertaken by isolated, disconnected individuals or teams, working in silos. Opportunities to share ideas, experience and learn from each other are lost. Some case studies, research and the findings of hundreds of projects are more widely known at a national level. Their online publication of provides a wealth of information, ideas and resources on many topics relevant to internationalisation; (Teaching International Students HEA. 2010), from curriculum development to teaching in a transnational context, yet these are most used by teachers already aware of the issues.

One of the barriers to internationalising the student experience is that the term internationalisation seems not to have a distinct meaning and can mean different things to different people. This can be one of the reasons why institutions have been slow to engage with the internationalisation agenda.

Early conceptualisations of internationalising the ‘whole institution’ (Knight 1997), were radical and exciting but too daunting for all but the most committed champions. It requires that colleagues and students to work together in new ways for new aims across all aspects of a university’s operations. A lot depends on the cultural relevance of such an idea, both within institutions and across a wider context. Support from the highest levels of power has created notable and successful examples; where the international dimension is integrated into all aspects of an institution’s activities for competitive advantage, where multi-cultural faculty are viewed as a unique selling point, and where a commitment to internationalism as a core ambition, universities have promoted themselves publically and achieved a powerful international profile 8

For pragmatic reasons, international strategies sometimes align with other agendas concerned with equality and inclusion, employability, global and development education for example. Where evidence demonstrates how intercultural experience can enhance employability or where staff and students’ feedback and rankings improve because inclusive practices are adopted, this is one way to promote internationalisation. There is a danger that such activities may be superficial and internationalising objectives alone are not valued except as a means to achieving another goal.

Internationalisation is often interpreted as the need to respond to international students in special ways such as compensating international students for their lack of skills in language or academic experience. Many students, not only those who have come from other countries, have yet to adapt to the demands of higher level study. If we are to reflect not only the international make up of a student cohort but environmental, economic and political challenges that face global communities, a broader interpretation of internationalisation is needed.

It is often argued that to adapt the way we teach, what we teach and how we assess learning to the needs of a diverse student community will dilute academic standards or fail to meet students’ expectations. Flexibility and responsiveness are basic principles of sound pedagogic practice. Students deserve teachers who have considered what is worthwhile to learn and are committed to teaching it. This might be difficult and require effort but a global student experience is more likely to encourage a partnership in learning and move away from the traditional transmission of knowledge that is already disappearing. We can, as teachers, take responsibility to

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8 Bournemouth University, Leeds Metropolitan University, University of Sheffield
explore with our students a culturally diverse approach, informed by the learning styles, skills, knowledge and experience from a wide range of cultures. (Knight 2004). Claims that ‘globalisation’ has changed the concept of internationalisation and have significant consequences for changing the curriculum and organisation, as an all-embracing process which permeates the life, culture, curriculum and instruction as well as research activities of the university and its members, recognising of the international and intercultural dimensions of services for both staff and students. There is little evidence that this is widespread. The responses of HEIs are still primarily focussed upon recruiting more international students and maintaining their share of the education market. Much is said about the importance of responsible, ethical and sustainable approaches to partnerships for long-term benefit, but intense competitiveness still characterises much of what counts for international activity in HE. This diminishes the quality and value of international education and denies cohort after cohort the cultural and intellectual benefits of a university education that acknowledges their ‘needs as future citizens and professionals working in fast changing borderless world’. (Middlehurst and Woodville, 2005).

If internationalising means, among other things, the creation of transformative global communities or dynamic ‘global villages’ (Shiel and McKenzie, 2008, p. 1) then most universities are a long way from achieving this objective. We find continuous evidence that universities the world over are concerned by the lack of cultural mixing between home and international students. Social interaction among students at all levels and across different disciplines suggests there is little international or cross-cultural engagement occurring spontaneously, informally unless there are significant interventions on the part of the institution. (Harrison & Peacock, Summers & Volet, 2008). Many students spend a year or more living in the UK and do not interact socially, meaningfully with their UK peers or local people. Their understanding of the host culture is likely to be gained at a distance without mediation from local connection and there is a danger that the experience of living in another country is at worst alienating and lonely but may also be a wasted opportunity which simply reinforces stereotypes, or creates new ones; reinforcing a sense of difference. This is an area of student dissatisfaction, which is of concern for Student Services and student organisations (NUS 2010).

Fanghanel & Cousin (2012) write convincingly about the dangers of essentialising cultures through well-intentioned attempts to teach cross-cultural awareness without acknowledging its full complexity. Teachers seek to find effective ways to encourage students to work together across cultural and linguistic difference in their classrooms. It is rare for students from different countries to discuss politics or current affairs, to debate ideas and share their real lives and their courses of study rarely demand that they do. Students may resent such demands because of the extra effort and time required; some see it as a threat to their grades. Few perceive working in diverse groups as a factor that might enhance their employability and interventions to which aim to encourage such cross-cultural experience and develop an informed cosmopolitanism can backfire as passive xenophobia increases.

Clearly there are students who are outgoing, skilful and enthusiastic to connect and learn from the opportunities for cross cultural understanding which are presented to them. There are courses which have developed curricula which succeed in creating opportunities for sophisticated intercultural learning but the globalisation demands that embedded in the mainstream of the student experience and try to embrace different cultures, and ideas. It means that in ensuring the employability of our graduates our ambition is that they should become world class by understanding the long term value of equitable collaborations with developing countries.

The significance of the international agenda for HE institutions must go beyond the level of competitive business. It requires large-scale investment, cultural shifts in management and organisation and pedagogical practices. This requires strategic leadership at the highest level. Seniority, and authority are needed to be able to work across boundaries in policy, resource allocation and structures. According to Kotter, (1990), full scale ‘internationalisation’ requires ‘leadership for change’ and ‘management of complexity’. Such a top down approach to institutional policy development would gain considerably from listening to teachers and students whose vision, ideas and support is needed for success but it is not enough, to have isolated champions as without leadership, impact will be limited and short-lived. So far there are few in charge of universities who choose to champion internationalism in this way and they are unlikely to do so, it is risky, it is idealistic and political and there are besides more pressing imperatives.

Effective management is essential to success to co-ordinate this activity. The key to drawing together the different strands and influences and energy for this work is to build relationships across institutions to enable colleagues to share ideas, experience and information and maximise and optimise the use of services located in different parts of the university. This does not happen easily, especially in large organisations where it is hard to communicate between student and staff organisations, between departments, across faculties and between
central services and faculty based and academic service providers. Policies that are informed about international and national developments can then be embedded in academic development, curriculum design that reflects global perspectives and engages students through all disciplines. Priorities for consideration might include transnational collaborative programmes and research opportunities for students and staff, which acknowledge these enhance the international reputation of the institution and support international development in their regions and localities. Specialist knowledge can be enhanced using existing professional standards frameworks for staff development and training at all levels including facilities and service providers. Internationalisation does not mean merely recruiting students from a world market, nor even ensuring that they can engage with the host society, access learning and succeed in their international studies. It demands a curriculum that reflects the global context, led by a culturally diverse academic community, committed to social justice, which values intercultural experience and skills, informal learning in a local social context through volunteering, exchange programmes and language teaching. Through such activities everyone is exposed to interactions with other people and cultures. (Clifford & Montgomery 2012).

Acknowledging that a diverse group of students bring different skills, experience and knowledge may require spending some time explaining how to engage with problem based or reflective and autonomous learning activities and introducing to the discipline. Students can be encouraged to suggest how they want to achieve the objectives of the course and what support they need from teachers to succeed. The connection between formal and informal learning can be valuable in encouraging students to engage in cross-cultural activity. Transforming learning through the creation of knowledge, ideas and skills that transcend cultural boundaries, can empower students and researchers to manage those global challenges more effectively, (Leask,2009). This in turn will enhance their success as individuals, as alumni and the success of the University.

Internationalising a university is a complex, difficult and demanding process but it will create an institution that is likely to be more distinctive and successful economically, with the potential to generate further innovation and increase revenue. A university which produces a wholly inclusive curriculum has a commodity it can trade anywhere in the world; optimising commercial advantage. Enhancing the curriculum with international content expands knowledge and encourages language acquisition, ensures the success of a diverse student body and meets quality standards.

There has been a surge of interest and higher visibility of internationalist agendas and there are some excellent models from which we can learn. In most universities, however, internationalisation is constructed is as a business strategy and this is not only short-sighted, it raises uncomfortable questions about the ethics of global relationships in education, a failure to acknowledge the negative impact of global activity in HE which could be seen to perpetuate disadvantage, and profit from exploitation.

Internationalisation should be one of the most critical innovative element in higher education today whether we are concerned with student and staff mobility, or the relationship between our different education systems, HE has a critical role in creating graduates who will become global citizens, who are adequately prepared for living in a world where interdependence is increasingly evident; in a world which reminds us, almost daily, of the need for global solutions. Universities must respond by internationalising approaches to curriculum design and research in a coordinated, inclusive and proactive way.

The full implication of adopting internationalism is to understand that it requires generosity, curiosity and an openness of spirit. Globalisation can be defined simply as action by individuals of groups which makes the world a better place and does good for as many people as possible, by protecting our environments, promoting freedom, ethical responsibility, honesty and justice. That greater humanity people demands world equity appears to be inescapable and this is not in the interests of those few who are currently in control, privileged and powerful. What emerges therefore as a troublesome political agenda is one that is at the centre of the debate about the purpose of education for the future.

References


Fielden, J. (2008). Global Horizons for UK Universities, CIHE,


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Innovation and Transformation of Practical Teaching In A Private University Malaysia

Kyi Kyi Tha
Senior Lecturer
Jeffrey Cheah School of Medicine & Health Sciences
Monash University Sunway Campus
46150 Selangor, Malaysia

Key words: Innovation and transformation, Active learning, Practical teaching

Introduction

The New Millennium educators including academics of tertiary education nowadays are facing a challenge of learning and teaching to fulfill the needs of students of generation Y who have shown the diversities of learning styles, different achievement levels and a variety of expectations. The commitment of academics to fulfill the learning requirements of students and their expectations is an important driven force for innovation of techniques for teaching delivery and transformation of teaching practice towards student-centered learning. The innovations and transformations in delivery of the lectures, tutorials and practicals are the various options to enhance active learning and improve the students’ engagement.

Aims

This poster focused on the innovative and transformative delivery of the histopathology practical for the Medical Bioscience students in the form of workshop session.

Methods

The total of three hours for practical session was divided into two major parts, the group presentations and individual assessment. The learning outcomes, the instructions and required materials for the related practical topics were highlighted to the students by uploading in the available e-learning platform (Moodle) a week prior to the session. A variety of learning resources such as morbid pathological specimens and histological slides compared with normal tissues, laminated pictures, case studies and relevant journal articles were also provided. In addition, the practical session was performed in the unique e-learning environment where the students could have the facilities of virtual learning, the anatomical models, pictographs, interactive Classroom/Audience Response Systems (CRS) or clickers.

The students were divided into 9-11 members per group and were required to learn from provided resources and other related additional resources that they needed to explore from the internet, textbook, etc. The learning process was moderated by the respective lecturer and laboratory demonstrators. The focus and main points of discussion topics were assigned for each group. After the completion of one hour learning and discussion among members of the groups, each group had to present the respective assigned topics including the explanation of answers to the related questions to the whole class. The students were encouraged to be creative and innovative as well. The maximal time allowance for each presentation was 15 minutes and all members of the group were required to participate. Some of the members were explaining the pathophysiology of the disease process, clinical features and pathological features, etc. while some were demonstrating the specimens or histology slides, identifying the evidence and references from the available up to date resources to the other groups.

Next, the student groups had to answer 4-5 multiple choice questions using the clickers. The response was recorded in the system and the lecturer gave prompt feedback at the end of the quiz. The last 30 minutes of the session was an individual assessment where the students had to complete the given worksheet or to answer the Objective Structured Practical Examination (OSPE). The practical questions were directly related to the topics of the practical to evaluate various skills starting from recall types to the critical thinking and problem solving types.
Results & Discussion

This modified innovative delivery of the practical session encouraged more engagement from the students and enhanced their active learning. The students tried to answer the clicker questions competitively. Moreover, the students could improve their critical learning skills, communication skills, problem-solving skills and teamwork. Feedback to the students included the individual marks of worksheets/OSPE and explanation of common errors, remarks on their group presentations, areas required to be improved, etc. Feedback data from the students were also positive. A range of real and virtual resources and facilities were provided so that it covered the students’ requests especially to maximize the numbers of histological slides.

Conclusion

In conclusion, this innovation and transformation of delivery of practical session successfully enhanced the critical thinking, problem solving, creativity and communication skills of the students. In addition, it encouraged collaborative, peer-assisted teaching and effective team work. The learning and teaching of the course was modified so that the students were equipped with the skills required for the needs of their employers.
C1-2

The Information and Communication Technology (ICT) In Philippines Education: Prospect For International Collaborative Learning

Gisela V. Rolluqui PhD
gvrolluqui2003@yahoo.com
Technological University of the Philippines
Manila, Philippines

Abstract

In the advent of globalization of the educational system in the Philippines, the Department of Education and the Commission of Higher Education addressed the modernization of the curriculum both in the basic and the higher education. With this is the striving effort to introduce modern facilities especially in the field of Information and Communication Technology. The research study aims to address the questions: Are the Filipino schools and universities ready for international collaborative learning? And what are the influential factors in the implementation of international collaborative learning in the Philippines? Specifically, this study aims to measure the prospect of the educational system to achieve international collaborative learning in terms of: curriculum, infrastructure, technology and technological knowledge. To answer the research question, the research is qualitative, wherein a descriptive method will be employed by means of questionnaires and observation of selected schools in Metro Manila. The study uses a heterogeneous sample of basic education schools and tertiary level universities and colleges of both private and public schools in the Metro Manila area. Questionnaires are to be distributed and interviews are to be conducted to the administrators of the sample schools. The gathered data will then be statistically processed to measure the readiness of the sample schools on international collaborative learning. The study will show the level of readiness of the educational system in the Philippines to international collaborative learning. The study will show the strong and weak points of the system and what are the possible steps to be done to minimize the gap to the implementation of international collaborative learning in the Philippines.

Keywords: collaborative learning, infrastructure, technological knowledge, heterogeneous

Introduction

As the teaching-learning methodology shifted from teacher-centered to student-centered, educators exploit the use of collaborative learning approach. It is an approach to teaching and learning that involves groups of students working together to solve a problem, complete a task or create a product. As described by Gerlach, 1994, “Collaborative learning is based on the idea that learning is a naturally social act in which the participants talk among themselves. It is through the talk that learning occurs.”

Thus, in this method, learning prospers in a social environment where conversation between learners takes place. In this environment the learners are challenged both socially and emotionally as they listen to different perceptions and are required to express and defend their ideas. Learners have the chance to converse with peers, present and defend ideas, exchange different beliefs, give query on other frameworks and be actively engaged. The shared learning gives students an opportunity to engage in discussions, take responsibility for their own learning, and become critical thinkers.

Due to these advantages, this has been done in the basic education level, primary and secondary. There are many researches that proved the effectiveness of this approach in these levels. However, there are only a few evidences on its effectiveness at the college level or even the post graduate level. Also majority of the research on collaborative learning have been done on non-technical disciplines.
The advances in technology and changes in the organizational infrastructure put an increased emphasis on teamwork within the workforce. Workers need to be able to think creatively, solve problems and make decisions as a team. Therefore, the development and enhancement of critical thinking skills through collaborative learning is one of the primary goals of technology education.

In a published study of Gokhale, A., Collaborative Learning Enhances Critical Thinking (1995), she examined the effectiveness of individual learning as it relates to learning outcomes at the college level for students in technology. It was concluded that collaborative learning fosters the development of critical thinking through discussion, clarification of ideas and evaluation of others’ ideas. Therefore if the purpose of the instruction is to enhance critical-thinking and problem-solving skills, then collaborative learning is more beneficial.

Background of the Study

In the Philippines, collaborative learning is gradually applied in advanced primary, secondary and the tertiary levels, in different degree of implementation dependent on the topic of the course, wherein the professor/teacher’s role is not to transmit information but to serve as facilitator for learning. In the primary level where pupils can handle group work, they are given special projects to perform in order to achieve a specific academic goal; an example is an interpretation of a Shakespeare’s work in Literature. In the secondary, students work together as a team on different projects such as in the field of science, literature, history, language, etc. In the tertiary level, collaborative learning is very much employed especially in the technology and science programs. The students are given projects wherein they have to apply the concepts they have learned. At the end of the course, the students have to present the output of their projects to the faculty.

For this collaborative learning, the group consists of students in the same class, most often heterogeneous. Mostly, the learning outcome is effective especially in small groups where everyone has participated. Members of the group brainstorm on the problem on hand and contribute what they have learned to accomplish the project. The exchange of ideas contributes mainly to the learning of the individual student. Thus, it is important in this methodology that the group members can talk and discuss with each other; communication is vital part in this learning technique.

Collaborative research across universities in the country is now being practiced to produce a more meaningful output. The universities are clustered by specialization to form a group of researchers of students or faculty members. The students of these universities will produce an output that will address a research problem. In this scheme the students learn not only the concepts in solving the research problem on hand but also how to deal with other students in other schools or universities, socially and culturally.

Problem Statement

Collaborative learning due to its advantages is widely practiced in the country. Students in the same school or even in other schools or university can collaborate to produce a solution to a problem. The most vital component of this learning strategy is communication among members. Nowadays with the advanced information and communication technology available, there is no reason for lack of communication among members of a group.

If the members of a group are from the same school, they can readily discuss or brainstorm face to face. For the group which consists of members from different schools or universities, they can meet for discussion in a place if they live near each other or if not; they can communicate through the Internet.

At present, the education sector of the Philippines aims to be upgraded to the international standards of education. To achieve this, schools and universities aim for its student to learn not only from the resources in the country but also from its neighboring countries. It is believed that students may learn more from their counterparts in other country since the discussion will be more diverse and of different perspective.

There are attempts from other foreign universities to collaborate with universities in the Philippines in the field of research. However, these international research collaborations are minimal and only among faculty members of the universities. At present, collaborative learning among primary, secondary or even college level students is still unknown if it is done at all.
Research Questions

The country is open for international collaborative learning; however there may be impediments to its full implementation, thus the problem that this study aims to answer:

General

What is the probability of the implementation of international collaborative learning in all levels in public and private schools, colleges and universities in the Philippines?

Specific

- What are the requisites for the implementation of an international collaborative learning in terms of:
  - Curriculum
  - Infrastructure
  - Technology
- What is the level of readiness of the education system of the Philippines of both private and public in the:
  - Primary
  - Secondary
  - College and Post graduate
  levels on the implementation of international collaborative learning in terms of:
  - Curriculum
  - Infrastructure
  - Technology
  - Technological knowledge
  - Administrative support

Research Methodology

Research Design

The study employs the qualitative method wherein public and private schools, colleges and universities in the Metro Manila area are the target subjects of the research. Metro Manila was selected because it is the largest area in Luzon and covers a large number of cities in the country. Also, the area comprises of public and private schools, colleges and universities.

It is needed to identify the essentials in the implementation of international collaborative learning in terms of curriculum, infrastructure and technology. After determining the minimum requirement of an international collaborative learning, the sample population is evaluated. First, the population is grouped by type; school, college and university, then each group is subdivided either they are private or public. Though primary and secondary levels are offered in schools, some colleges and universities include them also. For this study, all the levels in the sample are evaluated for their level of readiness to implement international collaborative learning.

Testing and Evaluation Procedures

The heterogeneous sample consists of twenty (20) universities, fifteen (15) colleges and ten (25) schools situated in Metro Manila. Table 1 shows the subdivision of the sample.

<table>
<thead>
<tr>
<th>Type</th>
<th>Total Number</th>
<th>Private</th>
<th>Public</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>25</td>
<td>5</td>
<td>20</td>
<td>13</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Colleges</td>
<td>15</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Universities</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>25</td>
<td>35</td>
<td>25</td>
<td>18</td>
<td>17</td>
</tr>
</tbody>
</table>

Table 1. Group and Subdivision of the Sample Population
In the Metro Manila, there are more public schools, colleges and universities, and from these, there is a higher number of schools at the primary and secondary levels but more universities at the tertiary level. It was also noted that most primary and secondary are public schools. There are also fewer colleges since most of them acquired the university level. Schools at the tertiary level are those which offer specialized courses.

The requirements to implement international collaborative learning is identified through the survey of the schools, colleges and universities utilizing collaborative learning, not only among their students but also among their campuses and with other students from other schools. The data gathered from the survey is the input to the requirements for collaborative learning. Also, the aspiration for international collaborative learning can be determined as well as how they can achieve this from their present status.

The sample is evaluated through a questionnaire on their practice of collaborative learning and level of readiness on international collaborative learning in terms of curriculum, infrastructure, technology, technological know-how and administrative support. The target respondents of the questionnaires are the administrative, academic and the IT personnel.

**Results and Discussions**

Among the sample, through an initial survey, it was found that at least thirty (30) schools, colleges and universities are utilizing in-campus collaborative learning and five (5) of which are attempting the inter-campus collaborative learning. Most of those on collaborative learning are in the tertiary and secondary level. For the in-campus collaborative learning, the groups have face-to-face discussion on the project or problem that they have to solve for a certain course. On the other hand, for the inter-campus collaborative learning, it is done through the use of the Internet discussion with the guidance of the professor as the facilitator.

From this initial data, those utilizing collaborative learning have well-planned, relevant and accredited curriculum especially those that are into inter-campus collaborative learning. They are following the outcome-based education system wherein the delivered outputs of each group are of good quality. The students learn not only from their professor and the books but also from each other.

For the inter-campus collaborative learning the groups are composed not only of students in the same class in the same campus but also from a class in another campus. This to be done, the curriculum and the teaching and learning strategy were planned. Also, to establish good communication that is available 24/7, there was an efficient IT and communication infrastructure. They also need technical people, trained to manage the system and the facilitators of the groups to have enough technical know-how.

Thus, to create an effective collaborative learning, the following are important factors:

- **efficient IT infrastructure** – to achieve good channel of communication among the members of the groups and the facilitator
- **well-planned, organized curriculum** – to introduce the collaborative learning strategy for the course
- **technological know-how** – the equipment and the network must be managed and maintained by qualified technical support group at the same time the users must be equipped with the technical knowledge
- **technology** – facilitate the modern, fast and convenient learning methodology through the modern technology
- **administrative support** – the management support on the attainment of quality learning for the students through technology

These factors were utilized to evaluate the level of readiness on the implementation of international collaborative learning of the sample population.

**Curriculum**

Since the K+12 educational system had been implemented since last year, the curriculum for the primary to secondary levels are updated, relevant and uniform for both public and private schools, colleges and universities across the country. This curriculum was planned, controlled and implemented by the Department of Education (DepEd). Basically, the Department issued the instructional materials and teachers in the primary and secondary level were trained for the teaching methodology on the content of the syllabus. However, this is only for public schools, for private schools, colleges and universities with primary and secondary programs, they develop their
own instructional materials and methodology but in accordance to the implementation of the required curriculum of the Department of Education.

On the other hand, the curriculum implementation of each program in the tertiary level is controlled by the Commission on Higher Education (CHED). A technical panel for each program recommends the content of the curriculum and the requirements for its offering and operation. The commission then accredits the school, college or university using the guidelines of operation by the technical panel. Once in operation, the commission monitors the implementation of such guidelines. Thus, the curriculum for the tertiary level is also strictly monitored for implementation. However, the teaching and learning methodology is on the discretion of their administrators.

**Infrastructure**

<table>
<thead>
<tr>
<th></th>
<th>Primary Level</th>
<th>Secondary Level</th>
<th>Tertiary Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public</td>
<td>Private</td>
<td>Public</td>
</tr>
<tr>
<td>Computer Laboratory</td>
<td>20%</td>
<td>90%</td>
<td>20%</td>
</tr>
<tr>
<td>Computers</td>
<td>30%</td>
<td>90%</td>
<td>30%</td>
</tr>
<tr>
<td>Local Area Network</td>
<td>10%</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Internet Connection</td>
<td>5%</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Multimedia Equipment</td>
<td>5%</td>
<td>100%</td>
<td>10%</td>
</tr>
<tr>
<td>Peripherals (camera, microphone, monitor, etc.)</td>
<td>5%</td>
<td>80%</td>
<td>5%</td>
</tr>
<tr>
<td>Instructional Software</td>
<td>50%</td>
<td>90%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Table 2. The Available ICT Infrastructure in the Sample Schools, Colleges and Universities

Shown in Table 2 is the percentage of the available infrastructures in the sample schools, colleges and universities in Metro Manila in the three levels of education. These data indicate the percentages of the sample that have the needed ICT infrastructure. As can be noted, the public institutions have lower value than the private institutions in all levels which indicate that not all in the sample public institutions have the necessary ICT infrastructure. The availability, however, increased in the higher level but not the same as the private institutions which have complete ICT infrastructure. Though the government supports ICT in education and there are many sponsoring industry and NGO’s, still the funds are not sufficient to support the 1:1 ratio of equipment for the students and sufficient laboratories where there is a problem of the lack of classrooms and buildings.

**Technology**

From the availability of the infrastructure, the use of technology in the teaching and learning process is limited in public institutions where there is lack or no equipment to be used for this purpose. Also, the students of these institutions are deprived of the use of ICT in learning because of the lack of laboratories and equipment. Meanwhile, in private institutions having enough equipment and sufficient infrastructure, students have more opportunity to learn through ICT since the teachers/professors teach with the use of technology.

**Technological Know How**

In the tertiary level, students are prepared to use ICT in all aspects of their profession. As can be noted, even public higher institutions have high percentage of availability of ICT infrastructure. This means that graduates of the tertiary level have sufficient ICT knowledge and can use this in their chosen profession, one of which is in the teaching profession.
It was found that teachers/professors in all level of education both in public and private can use technology as a tool for teaching. Also, DepEd and CHED sponsor and conduct trainings and seminars on the use of ICT in education. The teaching personnel are well-equipped with the necessary knowledge on the use of ICT in education.

Though the teaching personnel have technical knowledge of the ICT, there is a small number from the sample public institutions that have technical personnel for the management, operation and maintenance of the equipment. Most often the teacher using the equipment is assigned to be the technical personnel of the institution. The private institutions have technical personnel to handle all the ICT equipment and the infrastructure in general.

**Administrative Support**

Both the CHED and most especially the DepED support the use of ICT in education. There are great efforts on the part of these two government agencies to equip the students with the technology. However, greater problems in the public institutions are prevailing especially in the basic education, primary and secondary. These are problems of lack of classrooms and teachers. They rather address these problems before getting into full ICT implementation.

As the data of the availability of infrastructure in the sample institutions show, those with complete infrastructures have full financial support from their administrators on the importance of ICT in education. The administrators realize the use of ICT is an effective way of acquiring good quality of education for their students. With ICT as a tool to learning, they perceived that the delivery of knowledge is complete, accurate and resources are bountiful.

**Level of Readiness for the Implementation of Collaborative Learning**

<table>
<thead>
<tr>
<th></th>
<th>Primary</th>
<th></th>
<th>Secondary</th>
<th></th>
<th>Tertiary</th>
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</tr>
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<tbody>
<tr>
<td></td>
<td>Public</td>
<td>Private</td>
<td>Public</td>
<td>Private</td>
<td>Public</td>
<td>Private</td>
</tr>
<tr>
<td>Curriculum</td>
<td>4.3 H</td>
<td>4.5 HST</td>
<td>4.5 HST</td>
<td>4.5 HST</td>
<td>4.5 HST</td>
<td>5 HST</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>2 L</td>
<td>4 H</td>
<td>2.5 L</td>
<td>4.5 H</td>
<td>4 H</td>
<td>5 HST</td>
</tr>
<tr>
<td>Technology</td>
<td>2 L</td>
<td>4 H</td>
<td>2 L</td>
<td>4.5 H</td>
<td>4 H</td>
<td>5 HST</td>
</tr>
<tr>
<td>Technological Know How</td>
<td>3 M</td>
<td>4 H</td>
<td>3 M</td>
<td>4.5 HST</td>
<td>4 H</td>
<td>5 HST</td>
</tr>
<tr>
<td>Administrative Support</td>
<td>3 M</td>
<td>4.5 HST</td>
<td>3 M</td>
<td>4.5 HST</td>
<td>4 H</td>
<td>5 HST</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>2.9 L</td>
<td>4.2 H</td>
<td>3 M</td>
<td>4.5 HST</td>
<td>4.1 H</td>
<td>5 HST</td>
</tr>
</tbody>
</table>

Note: HST – Highest Level  LST – Lowest Level  H – High Level  L – Low Level  M – Medium Level

Table 3. The Perceived Level of Readiness on the Implementation of Collaborative Learning

Table 3 shows the perception of the respondents of the sample institutions on their level of readiness on the implementation of collaborative learning in terms of curriculum, infrastructure, technology, technological know how and administrative support. In all levels, the private institutions are perceived to have from high to highest level of readiness on its implementation, notably the private secondary and tertiary levels. The public tertiary level has also a high level of readiness since most of them are applying collaborative learning in some of their courses like their private institutions counterparts. On the other hand, the public primary and secondary levels had low to high level of readiness since they perceive due to insufficient financial support, though their curriculum are upgraded, they do not have the modern technology for use in teaching and learning. In the part of the government, they would like to primarily address the prevailing problems of lack of classrooms, school buildings and teachers. To answer the technological needs of the public institutions, various programs and projects are being implemented by the government in cooperation with local and foreign private and non-government organizations.
Conclusions and Recommendations

From the following gathered data, the probability on the implementation of international collaborative learning is not very high especially in the public institutions; however, it is high in the private institutions in all levels.

- For the implementation of international collaborative learning in an institution, the following are necessary:
  - Well planned, upgraded, relevant and organized curriculum
  - Efficient ICT infrastructure
  - Well trained technical personnel
  - Effective use of technology in education
  - Administrative support

- The private institutions, at all levels from primary to tertiary, are ready for international collaborative learning while the public primary and secondary institutions are presently not ready due to some other prevailing problems not limited to the lack of technological infrastructures, equipment and personnel. The public tertiary level institutions are however, ready for a medium scale international collaborative learning due to insufficient ICT equipment.

Based on the conclusion aforementioned, the following may be recommended:

- Establish a group of institutions, by level, to implement collaborative learning among themselves
- For institutions that are ready for international collaborative to implement it initially for selected courses or subject areas with selected neighboring countries
- Intensify the implementation of the use of ICT in education in all levels of education

References

Developing a multicultural teacher education curriculum using a collaborative-participatory process

Wilma S. Reyes, Ph.D.
Director, Educational Policy Research and Development Center
Philippine Normal University, Philippines
reyes.ws@pnu.edu.ph

Abstract

This research shows that a multicultural curriculum could be achieved through the use of the CPAE model of curriculum development. The CPAE model utilized the principles of collaborative participatory action research to guide the curriculum development. Through a collaborative participatory process, in addition to the expected voices of administrators as curriculum developers, other important stakeholders including teachers, and students were actively involved in the curriculum development process. The curriculum team made the changes in the Agusan teacher education program by incorporating multicultural content, pedagogy and assessment strategies in courses where integration was possible. Some of the learning competencies needed by PNU Agusan graduates to become multicultural in perspective, with sensitivity to the needs of other ethnic students particularly the Manobos, were incorporated and made explicit in the proposed Agusan campus curriculum. A multicultural infusion process model was developed as a result of the collaborative process, with “many heads thinking as one”, a very strong indicator of a collaborative principle. Results of the work on curriculum design included sample syllabi in the three components of the PNU teacher education program: General Education, Professional Education and Specialization.

Keywords: Multicultural Curriculum, Teacher Education, Collaborative Participatory Process

Introduction

The multicultural curriculum in the Agusan teacher education program reported in this paper proved to be a concrete outcome of a larger study using a collaborative participatory process in developing a local curriculum. The aim of the collaborative curriculum process was to directly involve the faculty members and student teachers in the development of the teacher education curriculum. As well, in exploring the collaborative participatory process, the results also yielded a curriculum model at the instructional level that is workable in terms of infusing multicultural concepts in the teacher education curriculum syllabi. This paper presents the curriculum outcomes as two-fold: (1) the multicultural curriculum outcome, and (2) the curriculum infusion model that led to the creation of the sample syllabi in the three components of the teacher education program: general education, professional education and specialization. This paper answers a significant question of a larger study, “To what extent does the CPAE (Collaborative, Participatory, Action-Oriented, Empowering) model achieve its purpose to provide a locally responsive curriculum suitable for a local campus of a teacher education university?”

Principles of Collaborative-Participatory Approach

The curriculum development process was guided by the following collaborative participatory action research (CPAE) principles. Collaborative action research could be a means to curriculum development in order to achieve the expected curriculum outcome:

Collaborative – Collaborative research encourages the commitment and dedication of the target participants to achieve the common goal, i.e. to create a multicultural curriculum for the social improvement of the local community. All efforts for the development of the multicultural curriculum are geared towards that vision (Gaventa, 2001; Kemmis & McTaggart, 2003; Reason & Bradbury, 2001; Stringer, 2004).
Participatory – Participatory research involves the full and active participation of the local university campus (teachers, students, administrators) in the entire research process as curriculum developers and learners as well. In curriculum planning and implementation those who are affected by curriculum changes must be involved in the process (Oliva, 2005). The teachers, students, and administrators are normally the people who are directly affected (Creswell, 2005). Thus, the exploration of the collaborative-participatory approach in curriculum development identified three groups of participants that needed to be represented on the curriculum team.

Action-Oriented - Action-oriented research requires that members of the team put their institutional vision into practice, such as the practice or advocacy for multicultural education in the classroom and the implementation of the multicultural curriculum in the whole school system. In this study, it is part of the institutional vision of Agusan campus to cater to the multicultural needs of the students in the local community particularly the marginalised (indigenous) group of people. In order to translate this vision into practice, the pre-service teachers should acquire the necessary multicultural perspectives they need for teaching students in the local schools. A concrete action to do this is to infuse multicultural education in the teacher education curriculum.

Empowering – CPAE processes can create a greater awareness among the participants involved of their own problems and conditions and mobilise them to make their own initiatives for their own local community development (Kemmis & McTaggart, 2003). The strong involvement of participants (teachers, students, administrators) in the curriculum decision-making process may lead to the successful creation of the desired curriculum outcomes.

CPAE emphasises the processes and meanings that are examined in the natural setting as experienced and created by participants. In this way, the participants in their local setting such as an educational institution design and implement the project in order to make recommendations for a change in practice.

Participants

Three groups of participants were selected through purposive sampling in this research to form a curriculum development team. Four PNU school administrators (Academic Director, Heads of Education, Arts and Sciences and Languages and Linguistics Departments) were selected to represent the administrators group. Five experienced faculty members (four from the Education Department and one from Social Sciences) were selected to represent the faculty group. Four teacher education students (one indigenous and three with knowledge of indigenous communities) were selected to represent the students group.

The curriculum development team originally comprised 14 members. However, at some stage of curriculum development one faculty and one teacher education student withdrew due to inability to attend all the meetings. Finally, it was a 12-person team that collaboratively initiated the bottom-up (Taba, 1962; Wiles, 2007) approach of curriculum development at the PNU Agusan campus.

Methods of Research/Sources of Data

Mixed method of research was used in this study. Collaborative action research was utilized to collect data through a series of curriculum meetings and the use of grounded theory informed the data analysis. The team members participated in ten (10) sessions over the five months of the curriculum making process. Meetings of between three to four hours were combined in some stages with focus groups and workshops to achieve the multicultural curriculum outcome. The researcher in consultation with the Academic Director drafted the initial timetable of the meetings. It was provided to the curriculum team as a working plan during the first meeting. The team members suggested revision in terms of content/topic and time schedules. Further changes to meetings occurred following the outputs of the preceding meeting. The illustration below provides a summary of the structure of the meetings.
Curriculum meetings were audio and video taped with consent of participants. Two additional members of staff served as process observers; one to undertake the videotaping and the other to record meeting notes. Another member of staff served as a local language translator and transcriber. The process observers’ meeting notes were supplemented with researcher’s memos to keep track of the development of the process as well as the curriculum content.

Other sources of data were the focused interviews that were conducted after the curriculum development process. Three students, three administrators and four teachers were interviewed. They were the participants who attended all the curriculum meetings. The following areas were covered in the interview with questions slightly modified to suit their position as an administrator, teacher or student: Personal, professional background and organizational culture, thoughts and feelings about the curriculum development experience and the collaborative participatory process, including benefits and difficulties as a team member.

Individual interviews were conducted in English although interviewees were able to express their views using Filipino (national language) and Cebuano (dialect) when it related to their personal background. Interviews were audio taped and later transcribed with the help of the local teacher translator. Interviews usually lasted for an hour. NVivo 8 qualitative data analysis software (QSR International Version 8, 2008) was used to code the transcribed texts gathered from the curriculum meetings, and individual interviews. Grounded theory (Charmaz 2006, Corbin & Strauss 2008) procedures were applied to the analysis of data which proceeded according to stages of open, axial and selective coding.

Results and Discussions

Changes in the Agusan Teacher Education Program

In response to the mission of the Agusan campus to improve its curricular program in order to meet the felt needs of both the mainstream and marginalized sectors of the local community, a multicultural curriculum was envisaged as the outcome of a collaborative action research. The purpose of multicultural education is not only to cater for a marginalized group, but to also raise the mainstream students’ cultural sensitivity to other ethnic students on the campus (Kitano, 1997; Nieto, 2004). This was the basis of the multicultural education framework where the decision for Agusan curriculum changes was made by the curriculum team. To achieve
this purpose, a multicultural infusion (Gay, 1997) was opted by the curriculum team rather than creating a separate program as a course of specialization.

Table 1 presents the summary of changes made in the existing curriculum that produced the Agusan curriculum standard after infusing multicultural standards and that aligned with the PNU teacher education curriculum main campus standards. In addition to the PNU vision of an empowered teacher (PNU Teacher Education Curriculum Model, 2005) now the Agusan campus curriculum framework envisioned an empowered multicultural teacher. As one Agusan director emphasized during deliberations about curriculum changes in the meeting with a reference group, the Agusan campus curriculum now has a “multicultural flavor” (field notes 06 August, 2008). This ‘envisioned multicultural teacher’ was described by the curriculum team in terms of the knowledge, attitudes and values, and skills needed by every pre-service teacher from the Agusan campus after completing a four-year Bachelor course in Elementary or Secondary Education.

In summary, the Agusan campus curriculum aims to produce multiculturalist teachers who have acquired competencies in the three components of the teacher education program: General Education, Professional Education and Specialization. As an educated multicultural person, PNU Agusan graduates must have not only national and global understanding of current educational trends and issues but also an understanding of the local, political history and culture of the ethnic groups in their own local community including beliefs, practices, customs, traditions, values, rearing styles and learning styles. PNU Agusan graduates are also expected to demonstrate commitment, fairness and patience in dealing with ethnic students. As reflective multicultural practitioners, PNU Agusan graduates must use and localize teaching methods, strategies and instructional materials and provide alternative assessment strategies suitable for diverse students in the local community or at least address the indigenous learning systems such as Manobo students in the classroom. PNU Agusan graduates can also be agents or mediators of multicultural issues by actively participating in the local activities of the community. The research to be conducted by the Agusan faculty and students must focus on ethnographic research to include local lifestyles and practices and solve multicultural problems with ethnic students. As a responsive multicultural specialist, PNU Agusan graduates should be able to promote multicultural education by infusing multicultural content and issues into the content of the discipline he or she will be teaching.

Table 1: PNU Agusan Curriculum Before and After Curriculum Development

<table>
<thead>
<tr>
<th>Teacher Education Component: General Education (Educated Person)</th>
<th>Existing PNU Curriculum Standard</th>
<th>Proposed Agusan Multicultural Curriculum Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>General: Demonstrates an understanding of culture, and the impact of change</td>
<td>• Demonstrates an understanding of local history/history of tribal and ethnic groups</td>
<td>• Demonstrates an understanding of local history/history of tribal and ethnic groups</td>
</tr>
<tr>
<td></td>
<td>• Demonstrates an understanding of the political history of locality</td>
<td>• Demonstrates an understanding of the political history of locality</td>
</tr>
<tr>
<td></td>
<td>• Displays awareness of relevant laws of the different ethnic and tribal groups</td>
<td>• Displays awareness of relevant laws of the different ethnic and tribal groups</td>
</tr>
<tr>
<td></td>
<td>• Keeps abreast with current trends and issues of local community</td>
<td>• Keeps abreast with current trends and issues of local community</td>
</tr>
<tr>
<td></td>
<td>• Demonstrates an understanding and background knowledge of different cultural rearing practices</td>
<td>• Demonstrates an understanding and background knowledge of different cultural rearing practices</td>
</tr>
</tbody>
</table>

Changes: Inclusion of local, political history/history of tribal and ethnic groups, Current trends and issues of local community, Understanding of different cultural rearing practices, Specifying cultural practices and aesthetic contributions of different ethnic groups in Agusan, Emphasizing appreciation and respect for cultural values and belief system of different ethnic groups, fairness with multicultural students, open-mindedness to local ways of thinking, commitment and patience in teaching ethnic students

<table>
<thead>
<tr>
<th>Teacher Education Component: Professional Education (Reflective Practitioner)</th>
<th>Existing PNU Curriculum Standard</th>
<th>Proposed Agusan Multicultural Curriculum Standard</th>
</tr>
</thead>
</table>
• Draws from a wide repertoire of strategies and adapt them to fit the instructional context
• Be able to use local and indigenous instructional materials
• Demonstrates teaching methods/strategies for multicultural education
• Actively involves oneself in the cultural activities of the local community

**Changes:** Localization of teaching methods, strategies and the use of instructional materials, Active involvement in cultural activities of local community, Awareness of local environment, Adaptation of local lifestyles and practices, Equity issues with ethnic students, Focus on ethnographic research, Use of alternative assessment strategies responsive to cultural context

**Teacher Education Component: Specialization (Responsive Specialist)**

<table>
<thead>
<tr>
<th>Existing PNU Curriculum Standard</th>
<th>Proposed Agusan Multicultural Curriculum Standard</th>
</tr>
</thead>
</table>
| **General:** Manifests expertise in the content of the discipline | • Keeps abreast with multicultural issues in education  
| | • Recognizes the significance of multicultural education and is able to integrate it with the content of the discipline |

**Changes:** Integration of multicultural content and issues with the content of the discipline

Following the changes in the learning competencies of PNU Agusan campus, the curriculum team identified the multicultural content for infusion and the courses by which multicultural content and issues could be infused. Table 2 describes the multicultural content and issues for infusion in selected courses of the three components of Agusan campus teacher education curriculum. Competency-based standards can be formulated based on the column on multicultural curriculum standards.

Table 2 also represents the final curriculum outcome created by the curriculum team to serve as a guide for Agusan faculty members’ intended multicultural infusion in their courses. BSE (Bachelor of Secondary Education) English and BEE (Bachelor in Elementary Education) are examples of multicultural infusion in the specialization. The courses for infusion were identified to guide faculty members on how to appropriately infuse multicultural content in a particular course. This summary table became the basis for the multicultural infusion in the sample course syllabi designed by the curriculum team members in a small group workshop. The curriculum team decided on the process of making the exemplar syllabi with multicultural infusion as an initial implementation of the curriculum changes.

**Table 2: Multicultural Content for Infusion in Selected Courses**

<table>
<thead>
<tr>
<th>Proposed Agusan Multicultural Curriculum Standard</th>
<th>Multicultural Content for Infusion</th>
<th>Courses for Multicultural Infusion</th>
</tr>
</thead>
</table>
| **Teacher Education Component: General Education** | A. Local History  
| | 1. Characteristics of Different Ethnic Groups  
| | 2. Ancestral Origin  
| | 3. Contribution to Society  
| | a. Political System  
| | b. Economic  
| | c. Socio-Cultural  
| | d. Religion  
| | B. Political History/Laws of Ethnic Groups | PED 1 (Foundations of Education)  
| | | HIS 1 ( Philippine History)  
| | | SS 2 (Economics Education)  
| | | Humanities 1  
| | | SS 1 (Philippine Government and Constitution)  
<p>| | | |
| | | |</p>
<table>
<thead>
<tr>
<th>Proposed Agusan Multicultural Curriculum Standard</th>
<th>Multicultural Content for Infusion</th>
<th>Courses for Multicultural Infusion</th>
</tr>
</thead>
</table>
| • Keeps abreast with current trends and issues of local community | C. Current Trends and Issues  
1. Migration/Emigration to Urban Areas/Displacement  
2. Retrieval of Ancestral Lands  
3. Awareness of the Conservation of Resources  
4. Literacy/Education/Indigenous Language  
5. Assimilation of Other Cultures | SS 5 (Issues & Problems in Contemporary Society) |
| • Demonstrates a working knowledge on the use of the indigenous language | 1. Panitikan at Wika ng Iba’t-ibang Rehiyon ng Bansa | F2 (Literatura ng Filipino) |
| • Demonstrates an understanding of the different cultural practices and life ways of different ethnic groups | 1. Different Cultural Practices and Life ways of Ethnic Groups Family | PED 1 (Foundations of Education)  
PED 2 (Child and Adolescent Development) |
| • Explains the aesthetic contributions of different ethnic groups in Agusan | 2. Aesthetic Contributions | Humanities 1 |
| • Appreciates and respects the cultural values and belief system of the different ethnic groups | 1. Human Values  
a. Respect of Elders  
b. Respect of Religious Symbols  
c. Respect of Ecology  
2. Belief System | VE 1 (Values Education) |
| • Demonstrates fairness in dealing with multicultural students | 1. Relationship with Multicultural Students- awareness of cultural diversity/differences, tolerance, appreciation  
2. Local Ways (Open-mindedness)  
3. Commitment in Teaching Multicultural/Ethnic Students | VE 1 (Values Education)  
SS 2 (Economics Education)  
Pers Ed 1 (Teacherhood)  
G-PSYCH 1 (General Psychology) |

**Teacher Education Component: Professional Education**

| • Develops and uses local and indigenous strategies and instructional materials | A. 1. Local and Indigenous Materials: Its Uses and Characteristics  
2. Making use of Local and Indigenous Instructional Materials  
3. Demonstration Teaching Using Local and Indigenous Materials | PED 4 (Educational Technology)  
PED 6 (General Principles and Methods of Teaching 2) |
| • Actively involves oneself in the cultural activities of the local community | B. 1. Multicultural Activities of Different Ethnic Group  
2. Immersion in Multicultural Activities  
3. Peace Education | PED 18 (Practicum)  
PED 1 (Foundations of Education)  
PED 13 (Development in Education) |
| • Encourages parent-teacher involvement in support of student learning | C. Parent-Teacher Involvement in Students’ Learning | PED 18 (Practicum) |
| • Utilizes appropriate alternative system strategies | D. Strategies in Multicultural Education/Culturally Diverse | PED 6 (General Principles and Methods of Teaching 2) |
### Sub-theme C: Methodologies & Strategies In Learning, Teaching & Assessment

<table>
<thead>
<tr>
<th>Proposed Agusan Multicultural Curriculum Standard</th>
<th>Multicultural Content for Infusion</th>
<th>Courses for Multicultural Infusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>in multicultural education Students</td>
<td>E. Classroom Management for Culturally Diverse Students</td>
<td>PED 6 (Principles &amp; Methods of Teaching 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PED 18 (Practicum)</td>
</tr>
<tr>
<td>• Provides classroom atmosphere that respects cultural diversity</td>
<td>F. Ethnographic Research</td>
<td>PED 14 (Introduction to Research)</td>
</tr>
<tr>
<td>• Demonstrates skills in ethnographic research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Uses variety of authentic/alternative assessment strategies responsive to the cultural context</td>
<td>G. Authentic Assessment, Strategies/ Tools Responsive to Cultural Context</td>
<td>PED 7 (Assessment and Evaluation of Learning)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PED 9 (Curriculum Development and Instructional Planning)</td>
</tr>
<tr>
<td>• Uses ways to monitor effects of teaching on student learning</td>
<td>H. Ways to Monitor Effects of Teaching of Students' Learning (Performance, Portfolio Assessment and Rubrics and other ways)</td>
<td>PED 6 (General Principles and Methods of Teaching 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PED 11 (Alternative Education)</td>
</tr>
</tbody>
</table>

#### Teacher Education Component: Specialization

**BSE (Bachelor of Secondary Education) English**
- Keeps abreast with multicultural issues in education
- Recognizes the significance of multicultural education and is able to integrate it with the content of the discipline

- Barriers in Foreign Language Acquisition: S-Eng 27 (Introduction to Language)
- Contrastive Analysis: S-Eng 28 (Preparation & Evaluation of Instructional Materials)
- Use of Indigenous/Local Resources: S-Eng 14 (Speech & Stage Arts)
- Available Local Translated Genres

**BEE (Bachelor of Elementary Education)**
- Fauna and Flora Varieties in Locality: CEC-S1 (Elem. Botany & Zoology)
- Home and Family Living
- Money Management: CEC HELE (Home Economics & Livelihood Education)
- Beliefs and Concepts of Health

### Multicultural Infusion Model in Teacher Education Curriculum

The infusion process model (Figure 2) was designed by the curriculum team based on the suggestion of one faculty participant (T1) to create a model for multicultural infusion in the three identified sample syllabi for general education, professional education and specialization. Other components of the model were drawn from Kitano’s model for multicultural course and syllabus change in postsecondary courses in the United States such as the instructor’s multicultural goals and course elements and syllabus (Kitano, 1997). This is understandable because the Philippine teacher education program was patterned after the US model. The first step in the infusion model was the identification and understanding of the course goals and the multicultural goals taken from curriculum standards or competencies. The multicultural goals would be the basis of the multicultural content for infusion in the specified course for integration. The curriculum team decided to adopt one dimension of multicultural education from Banks (Banks, 2005; Banks, 2010), content integration. In this dimension,
teachers use content and examples from different ethnic groups to illustrate key concepts, principles or theories of their course or discipline. The infusion should be authentic rather than contrived. For instance, one faculty participant cited the example of using local resources in the community to explain a particular concept. The next step was to identify the desired level of change or perspective that faculty members would like teacher education students to attain in their course. This could be seen in writing the course objectives; whether it is conceptual (cognitive domain), attitudinal (affective domain) or behavioral (psychomotor domain). The modes of infusion as decided upon by the curriculum team could be natural, meaning the multicultural content should be infused throughout the course as a natural vehicle for multicultural content integration because the content of the discipline suits issues on multicultural education. For instance, social sciences courses could infuse multicultural content naturally because the discipline discusses societal issues and it includes race, or ethnicity. In disciplines such as Mathematics and other technical professional education courses for instance, a faculty could provide an example situation in order to infuse fairness in dealing with ethnic students in teaching about the concept of fractions.

Pedagogical and assessment strategies for multicultural students also need to be considered when multicultural infusion of content is applied. To be culturally responsive in the teaching practice, the faculty should be able to use a varied instructional activity which means they need to have a wide “repertoire of strategies” for a diverse classroom (Villegas & Lucas, 2002). The use of varying strategies for multicultural students was also discussed by the curriculum team in one of the meetings focusing on pedagogy. However, it was just a glimpse of pedagogy because there was lack of time to discuss the suitability of pedagogical strategies to address the diversity of students. Another important aspect of multicultural infusion is the use of varied approaches to assessment of multicultural students. The curriculum team also discussed assessment in one of the curriculum meetings. It was suggested by one faculty participant (T3) that assessment could also be different for teacher education students with differing ethnicity. This was valid since indigenous students like the Manobos of Agusan were more holistic in their views and approach to learning (Reyes, 2004). The faculty should be able to identify the needs and strengths of diverse students in order to help them grow academically and assessment strategies should be authentic for this matter (Villegas & Lucas, 2002). Pedagogical and assessment strategies are two important elements of the curriculum that need to be examined closely as curriculum developers work on the implementation of the proposed multicultural curriculum. In the meantime, the curriculum team developed exemplars for other faculty members to trial in their classrooms.

Following the infusion process model (Figure 2), the curriculum team was able to design sample syllabi with multicultural infusion in the Professional Education course (Prof. Ed.6 – Principles and Methods of Teaching); Specialization course (Eng 28 – Preparation and Evaluation of Instructional Materials); and General Education course (SS 2 – Economics Education).
Figure 2: A Model for Multicultural Infusion in Teacher Education Course Syllabus (Model inspired by Kitano, 1997 p. 21)

The multicultural infusion model was successful in terms of developing the exemplar course syllabi. The curriculum team members were happy with the multicultural outcomes and the learning acquired in the process of producing all curriculum outputs in small group workshops and as a whole team. One teacher participant commented, “We successfully finished all the expected outcomes because many heads are better than one. And this is one benefit we got from the collaborative experience” (T2, Interview).

The multicultural curriculum outcomes presented here are the product of the curriculum team in the ten meetings. The CPAE process that produced the multicultural outcomes emerged in the actual designing phase of the curriculum development process, which is the core, and the major phase of this research. This research has boundaries and could not include the actual implementation of the curriculum outcome. However, the entire process of curriculum development does not end here and the successful implementation of the CPAE model has to keep the work ongoing with more tasks to be undertaken for the actual implementation of the proposed multicultural curriculum. This is where the action component of the CPAE principles will be realized. The
planning stage started with a shared vision, this vision was translated into a concrete multicultural curriculum, and implementers in practice can use this curriculum for the next phase, its implementation. The whole process of curriculum development takes cyclical steps of planning, reflecting, and acting. There need to be more reflections from the curriculum decision makers as to how the work started by the curriculum team might be structured and implemented. There were indications from empowered participants of the curriculum team to continue the work in their own individual efforts and capacity. However, the collaborative and participatory principles have to be embedded throughout the whole system for these to be a sustained implementation of the curriculum that will see its impact in the local community. This would be the time when theory has made its way into actual practice.

Conclusions and Recommendations

The challenges would inspire the PNU Agusan campus administrators and faculty to think of continuing work for the Agusan teacher education curriculum and viable strategies for its effective implementation. The curriculum team has laid down the foundation of the changes for the Agusan curriculum to make it culturally sensitive to the different ethnic students in the local campus. However, following Bank’s (Banks, 2010) multicultural education framework, the curriculum outcomes achieved only the first dimension of multicultural education, multicultural content integration. More detailed curriculum work needs to be done to make the curriculum outcome beneficial to the whole Agusan community specifically to the ethnic students.

The design of the multicultural curriculum will contribute to the sustainability and continuity of local culture, knowledge and learning, as an important aspect of cultural identity particularly of the Manobo students. The faculty members are expected to infuse the identified multicultural content in their courses with dedication and commitment to promote multicultural education for ethnic diversity. Pedagogical and assessment strategies need to be identified as part of the successful infusion of the multicultural content in the three components of the teacher education program (Villegas & Lucas, 2002).

Due to time constraints and the limitations of this research, the curriculum team did not undertake a number of specific tasks regarding the multicultural curriculum outcome. The curriculum team achieved multicultural infusion at the institutional level but took only the initial step at the instructional level for the faculty members’ benefit. Further necessary steps must be done for its effective implementation. The PNU Agusan campus administration should initiate and continue the unfinished work, such as planning a writing workshop for faculty to revise and update their existing syllabi infusing the multicultural content and trialling these syllabi with infusion in the classroom. Workshops must include pedagogical and assessment strategies which are very important elements of a multicultural curriculum. An evaluation trialling the multicultural infusion in the classroom could be the basis for the full implementation of the multicultural curriculum for the Agusan campus that would eventually differentiate it from the PNU main campus.

This research has shown CPAE to be an effective process to develop a local teacher education curriculum. CPAE principles could be applied in all the remaining tasks for the multicultural curriculum development. Engagement of more faculty members and teacher education students is encouraged in continuing the work for the Agusan campus curriculum development. Other faculty members and student representatives could also be given a chance to take the lead role based on an insight of the Academic Director that other faculty members could also lead if given a chance, not only relying on the abilities of those who have visible academic potentials.

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I would like to thank my supervisors Prof. Rosalind Murray-Harvey and Dr. Pamela Bartholomaeus and the PNU Agusan Campus for their collaboration in this research project.

Correspondence

Any correspondence should be directed to Dr. Wilma S. Reyes, Philippine Normal University Taft Avenue, Manila 1000 Philippines (reyes.ws@pnu.edu.ph)

Selected References

(Eds.), Multicultural course transformation in higher education. Boston: Allyn & Bacon.
Allyn & Bacon.
Sage.
Reyes, W. S. (2004). The impact of globalised knowledge and learning on the cultural identity of Manobo 
Agusanon teacher education students in the Philippines. Unpublished manuscript. Flinders University, 
Adelaide.
York: State University of New York Press.
Prentice Hall.
Innovation In Active Learning: Applying Lessons Learnt At Sheffield Hallam University to Support Information and Academic Literacy Development of TAR College Students.

Diane Rushton,
Sheffield Business School,
Sheffield Hallam University, UK.
d.rushton@shu.ac.uk

Alison Lahlafi,
Learning and Information Services,
Sheffield Hallam University, UK.
a.e.lahlafi@shu.ac.uk

Abstract

Research objectives: This paper discusses a collaborative initiative between a module leader, librarian and academic skills tutor to support information and academic literacy skills development of TAR College (TARC) students on the Business in Emerging Markets module at Sheffield Hallam University. It explores the transferability of active learning and teaching techniques used with second year home students to final year incoming TARC students. With the increased emphasis on the use of mobile technology in education, the paper also explores issues around inclusiveness and effectiveness of using mobile phones in a classroom to enhance student engagement, testing the theory by Cobb et al. (2010) that the use of mobile technology may “enhance inclusivity and empower students to interact who normally would not”, and that it “promotes an active learning environment.” Literature review key findings are given. Methodology: development, implementation and assessment of learning workshop activities and use of mobile phones to enhance student engagement. Preliminary findings and areas for further research once students have completed the module are stated.

Keywords: academic literacy; active learning; mobile technology; student engagement; cross university collaboration

The issue

Business in Emerging Markets (BEM) is a final year undergraduate module taught to home students and TAR College (TARC) students at Sheffield Hallam University (SHU). Changes at the beginning of academic year 2013 to assessment regulations at SHU have meant that a new assessment for this module was required. For the assessment, students have to identify four peer-reviewed articles that they use as the foundation to run a 45-minute seminar, followed by a written 2500 words of critical discussion of the articles. This requires the students to have good information literacy skills in terms of researching - sourcing four appropriate peer-reviewed articles and good academic literacy skills in terms of critical analysis and interpretation of articles, as well as being “as confident in their spoken ability to convey their arguments as in their written expression for assessment purposes” (Sheridan, 2011).

The lack of students’ ability to sift through and critically evaluate information is highlighted by Chowdhury et al. (2011) and Dubicki (2010, p375). “The information students collect is often questionable and they admit having a difficult time in selecting the best material for inclusion in projects. This is further aggravated by their lack of critical evaluation of the credibility of the material they have secured.” This tallies with the authors' experiences at SHU. From long experience of teaching TARC students, the module leader was also aware of the students' concerns about their academic writing. This is not uncommon. As Turner (2011) found, students commented on not knowing exactly what was expected of them in their writing, and how much they worried about it. Lea and Street (1998) suggest that the problems in student writing might be the result of a gap between...
what the academic expects and how the student interprets this. Academic literacy theory helps to clarify the relationship between writing and learning (Lea, 2004). It challenges the view that academic writing development should be concerned with addressing a skills deficit, instead taking a position that recognizes how academic fluency comes from seeing “language as socially-situated discourse practices which are ideologically inscribed” (Lillis, 2006, p.31). The module leader would concur with this as she does not accept the “deficit” models of students writing. Haggis (2006) puts forward the idea that the responsibility for lifting the barriers to writing should be the responsibility of tutors, who should be more explicit in explaining what is expected.

The module leader therefore recognised a need for innovative and engaging intervention strategies to ensure that TARC students are supported in developing their information and academic literacy to ensure success in the assessment for the BEM module. As Ryan (2011) discusses, the “how to “fix” the students to how to ‘fix’ the teacher,” are outdated approaches to teaching international students. Academics should develop “sustainable and innovative ways to move beyond the deficit debate.”

Research Objectives

The TAR College BEM module runs from June- September 2013. The authors have worked collaboratively since 2008 with level 5 (second year undergraduate) students, successfully developing and implementing active learning activities to develop web searching skills (Rushton et al, 2011). The module leader believed that lessons learnt from the collaboration about embedding interactive actives in supporting student information literacy, could be transferred to the BEM module. Collaboration for BEM was broadened further from faculty / librarian collaboration, to include an academic skills tutor, who helped plan the learning activities around effective reading and writing. Advice from the library’s Virtual Learning Team was also sought in order to implement mobile technology in the workshop’s learning activities.

Specifically the BEM module looks to develop student skills in the following areas: understanding what a peer-reviewed journal article is; developing an effective search strategy to locate and download appropriate peer reviewed journal articles and other good quality resources; developing effective skills in reading, critical analysis, identifying appropriate sources for an assignment and academic writing. As Scouller (1998) illustrates, good performance in essay writing is linked to students developing and using deep learning strategies. A fully embedded approach will enable students to see that knowledge is constructed, rather than merely represented through writing (Lea, 2004).

The focus of this collaborative initiative is to develop, implement and assess the impact of formative activities (including using mobile technology), to engage and support the students in developing academic and information literacy skills required for success in the assessment. As Bryson and Hand (2007, p.360), reflect, “positive engagement ... is unsurprisingly linked to [students] enjoying what they do.”

Literature Review

To support this research the authors reviewed three areas. Key findings are highlighted below.

Academic and information literacy skills in higher education

A recent paper looking at the sources students use in HE (Turnitin, 2012) shows that only just over half of Internet sources in student writing come from legitimate educational resources. 57% of matches come from academic and homework sites, news and portal sites and encyclopedias. It concludes that students in HE need further instruction on proper research habits. These findings align with our review of the literature looking at information and academic literacy skills in HE. The literature confirms that higher education students often struggle to find, evaluate and use information sources (Tabatabai and Shore, 2005; Berzonsky and Richardson, 2008; Dubicki, 2009; Advic and Ecklund, 2010) and as found by the Turnitin report, often rely heavily on poor internet sources (Brown et al, 2003; Song, 2005; Williams et al, 2008; JISC, 2009). Berzonsky and Richardson (2008) comment on students lacking the vocabulary to identify relevant online peer-reviewed articles, and there is evidence of a lack of critical thinking skills required to be able to critique peer-reviewed literature (Jordan et al., 2006; Scott and Simmons, 2006). The literature review also corroborates the findings by Sheffield Business School academics at SHU, of business students often evidencing poor information and academic literacy skills: “Business faculty observed students with poor discernment of quality information sources, a limited understanding of the ways to validate sources, limited knowledge or experience in conducting effective and efficient information searches,” (McInnes Bowers et al. 2009, p. 111-112); “We and many of our colleagues
have grappled with the lack of student IL (information literacy) with the common experiences of (...) reading papers with no academic resources, receiving annotated bibliographies of references based predominantly on a Google search,” (Leigh and Gibbon, 2008). MacMillan and MacKenzie (2012, p529) describe similar issues to the authors, students struggling with both information and academic literacy skills, “(students) grappled with locating relevant articles, as well as reading, synthesizing and applying the articles to their client projects.”

The increasing diversity of students’ cultural and linguistic backgrounds means that students may lack familiarity with the conventions of HE writing. Educational background, ethnicity, cultural expectations and gender all influence how students read academic texts and respond in writing (Lillis, 2001). Reasoning and writing in a specific discipline is difficult for home and international students, (Wingate and Tribble, 2012). Mitchell and Evison (2006, p71-72) argue that the teaching of writing should be ‘an integral, ongoing part of disciplinary learning for all students’. Teaching writing therefore needs to be embedded in subject learning to provide students with a means of conceptualizing disciplinary epistemologies (Hyland, 2013).

For the purpose of this research the authors define information literacy as, “knowing when and why you need information, where to find it,” taken in part from CILIP’s definition (2003) and a broad academic literacy definition from ICAS (2002), “reading, writing, listening, speaking, critical thinking, use of technology, and habits of mind that foster academic success,” as this addresses all the elements of the BEM module.

Creating a successful learning environment using active learning

The role of active and reflective learning in creating a successful learning environment has been explored by the authors in a previous paper, (Lahlafi et al., 2012) concluding that active learning initiatives clearly engage students and promote learning. Within the area of active learning, there is a growing literature around the potential of mobile phones for active learning in the classroom. The authors agreed to explore this area within BEM. Using technology familiar to students and impact of mobile technology on student engagement dominates the literature (Lindquist et al. 2007; Dyson et al., 2009; Cobb et al., 2010; Logan, 2010; Gokhale and Bhakare, 2011). The aptly titled "Mobile phones in the classroom: if you can't beat them, join them", (Scornovacca et al., 2009, p.145), concludes that mobile phones "increased class interactivity, increased their interest level in both the classes and (to a somewhat lesser extent) the subject material, and overall was a useful and enjoyable addition.” Logan raises issues around the inclusivity of using smart phones in the classroom, as some students may not be able to afford them so, “will once again sit on the wrong side of the digital divide,” (2010, p.34).

Successful cross-university collaboration

The value of academic and librarian collaboration in teaching information literacy is acknowledged in the literature, (Shumaker, 2010; Tucci, 2011, Masiss, 2012). Gasper and Wezel (2009) write of collaboration between library and faculty staff in improving student writing skills, and conclude, “Ultimately, students benefit as their writing courses blend perspectives and skills from a collaborative team,”(p.587). Beard and Dale (2010, p.486) argue that information literacy should be seen as "a component of broader academic literacies. To encompass these, librarians need to step outside of their traditional areas and work with colleagues from other disciplines,” (p.486). Gunn et al., (2011) also argue for a collaborative approach between academics, librarians and learning support staff, to embed academic skills, "when generic skills are presented as an integral and assessed part of their course of study, learning is more likely to be uniform and more effective. The workloads of teaching and learning support staff are also more manageable with up-front investment rather than demand being addressed on an ad hoc basis at the point of need” (p.8).

Methodology

Creating a learning workshop

Building on their experience from previous collaboration, the authors decided to create a novel arena; a learning workshop in which the students could explore their own research and writing skills through a range of formative activities. Previous collaboration had taken place in a lecture theatre and PC lab which were not conducive to some of the innovative activities being developed for BEM. The BEM learning workshop was delivered in a purpose built flexible learning space in the Adsetts Learning Centre (University library). This was developed in 2012 to create a stimulating, alternative learning environment to the traditional classroom or PC lab, and to cater for technology enhanced learning. “To acquire academic literacy students need library buildings that take account of “what the student does”, changing learning styles and preparation for employment in a digital world,” (Beard and Dale, 2010, p.480). It has a smart board, whiteboards, laptops, wifi, and flexible furniture
arrangements which can be quickly reconfigured to suit different group activities. The environment encourages
use of technology, a good setting for activities using smart phones and laptops. The authors believed that TARC
students being part of the ‘net-generation’ (Oblinger and Oblinger, 2005, p1-2) would be intrigued by the
technology and engage positively with it, as shown by our previous experience in using Digital Posters to
support students in developing their academic literacy, “The novelty of the technology and the task was
perceived as being “fun”, “interesting,” and “a good way to engage your attention” and contributed to a high
sense of engagement and ownership.” (Rushton et al., 2013).

The authors developed and implemented a number of learning activities for the learning workshop with a focus
on encouraging active learning and engagement. These included:

- Using mobile phones text messaging via online polls (www.polleverywhere.com/) and an online wall
  (padlet.com) to assess and share knowledge eg. students were asked to choose the correct definition of
  a peer reviewed journal article.
- Demo and templates for a 4-stage search process which students can apply to any research tasks.
  Elements included: writing short sentences about the topic to promote better understanding of their
  topic; using mind maps to identify keywords for searching; systematic searching of key resources.
- Students were asked to visually represent the elements of an essay to ensure they understood the
  structure of academic writing.
- Timed exercises practicing new techniques to be able to quickly assess whether or not to read the full
  article, including effective skim reading of key elements of an article.

**Preliminary findings**

At the time of writing the module is still running so final analysis of the full impact of the innovative formative
activities has not yet taken place. The module leader’s perception of the need for development of students’
information and academic literacy skills was underlined by poll results during the learning workshop which
showed that nearly half of these final year students were still using Google as their starting point for research
(47%), and more than half (54 %) were unable to correctly define a peer-reviewed journal article. 85% of
students do not read any academic journals in English (outside of class).

The impact of workshop activities on students at the end of the workshop was perceived to have been positive,
with students indicating much higher levels of confidence in their ability to carry out the assessment task of
sourcing and using peer-reviewed journal articles. See figures 1 and 2 below.

![Figure 1](image1.png)  ![Figure 2](image2.png)

**Figure 1**: Levels of student confidence in FINDING 4 peer reviewed journal articles for their mini seminar presentation.
**Figure 2**: Levels of student confidence in READING peer reviewed journal articles for their mini seminar presentation.

There is also evidence from the students that two weeks after the learning workshop they were using the
research and reading techniques developed in the workshop. A detailed questionnaire was used with one
seminar group to provide further follow-up on impact of the workshop when the students had had the
opportunity to try using the techniques taught during the workshop in order to source their 4 journal articles.
An online wall (padlet.com) was also made available on the Virtual Learning Environment for one seminar
group to encourage student self-reflection on skills developed during and following the workshop. This activity
built on reflective exercises used in formative assessment in previous modules taught by the authors, concurring
with Quinton and Smallbone, 2010, “the ability to reflect (…) is central to critical thinking and deeper learning.”
Student feedback was overwhelmingly positive, showing enjoyment of the active learning techniques employed in the workshop in developing information and academic literacy skills. Students reported developing better research skills, “The session fine-tuned my research skills and help me to save more time in getting a genuine report that I wanted instead of going 3 hours without getting anything,” and better reading skills, “I have learnt about scanning and skimming through the academic journal within a short time to find out if the article is useful for my assignment topic. It is a very efficient way of searching for academic journals which I wish that I have known this earlier.” They also reported increased motivation, “It gave me a kickstart on what to do to begin my assignment and motivated me to start early.” There was appreciation of the use of mobile technology correlating with the literature search findings described earlier in this paper: “very interesting and lets everyone to freely answer the question anonymously”; “it helps the “shy” to participate more;” “Interesting workshop! Which I never come across by used of mobile phones to answer questions in class.” Students completing the detailed questionnaire were asked whether they would consider using mobile phone activities in their own presentations, and 72% said yes to Padlet, 56% said yes to Polleverywhere. One student suggested “students can write their opinions and questions that they do not understand on the wall.” The authors did not teach the students how to use these tools but they were engaged enough to seek them out and re-use them in their own mini-seminars.

Further research

In order to fully assess the impact of the active learning workshop activities, once the module is completed the authors plan to assess whether student increased confidence in researching and reading peer-reviewed journal articles actually translated into successful completion of module tasks by:

- holding a focus group with one seminar group to gain more detail from students on the impact of the workshop as they near completion of the module.
- comparing the journal articles selected by the TARC students with those of home students taking the same module who have not had the learning workshop intervention. Comparing the journal articles selected by the TARC students with those of students taking the module in a partner institution in Singapore who have not had the learning workshop intervention.
- comparing TARC student cohort assessment marks and those of students who have not had the learning workshop intervention.

It is hoped to share some of these findings at the TARC Innovation and Transformation in Learning and Teaching Conference in October 2013.

References


Modifying Classroom Culture For Better Learning

Vakhguelt Anatoli
Nazarbayev University
Astana, Kazakhstan
anatolivakhguelt@yahoo.com

Wang Su Chen
Swinburne University of Technology
Sarawak Campus
Kuching, Malaysia

Abstract

Background

This paper illustrates the role of reflection in classroom practice as an approach to improving the learning scores of a group of low performing students who did not perform as well as students in a different campus even though the syllabus and the teacher were the same for both groups. Research on reflection lends support to the view that learning improves when the teacher adopts the practice of reflection in his or her teaching and acts on the reflection.

Purpose

The study sought to answer this question: Would a weekly quiz and a habit of asking questions serve as a means of intervention for improving the learning scores of the students?

The purpose of this study was to show that a reflective teacher teaching a first year subject who understood his or her students’ learning backgrounds would be likely to find a solution to improve student learning performance. In this study, the subjects taught were first year Engineering subjects and the method of intervention was a weekly quiz and additional tutorials.

Method

The lead researcher, who taught the same subject, Engineering Mechanics, using the same teaching techniques, first in Australia and then in Miri Sarawak based the study on the two groups of first year students, one in Miri and the other in Bentley, Australia. The study produced two different sets of final results, reflecting possible causes for the differences in learning outcomes. The Bentley results were about 20% higher than the Miri results. The researcher’s observation was that the Bentley classroom culture was one of enquiry and independent learning whereas the Miri culture was that of acquiescence and dependence on the teacher. To improve the learning at Miri, the researcher modified the classroom culture by including a series of weekly quizzes targeted at understanding of weekly lessons and additional tutorials during which students were encouraged to ask questions.

Results

In introducing the weekly quiz and additional tutorials in which students learned to ask questions, the teacher created a new classroom culture of learning, which resulted in the Miri students’ performance improving significantly. The quiz also deterred the students from forming the habit of copying as each quiz was too short and strictly supervised by the teacher to prevent copying among the students.
Conclusion

This study concluded that the teacher’s reflective approach to the Miri students’ learning environment and his actions to encourage student motivation and habit of questioning had resulted in a classroom culture that enhanced the learning environment for the Miri students.

Keywords: Teaching, learning, assessment, outcomes.

Background

This paper illustrates the role of reflection in classroom practice as an approach to improving the learning scores of a group of low performing students who did not perform as well as students on a different campus even though the syllabus and the teacher were the same for both groups. Research on reflection lends support to the view that learning improves when both the teacher and student adopt the practice of reflection in their teaching and learning.

The aim of this study was to reflect on the study factors affecting the teaching and learning outcomes of Engineering Mechanics 131 at Sarawak Campus of Curtin University of Technology (Miri). The study was based on the teaching and learning results in the first semester 2003. After the analysis of the first semester results had been done, a new assessment was designed for implementation in the next semester for a similar subject, Engineering Dynamics 134, and later for Engineering Mechanics 100. The implementation of the new assessment in the form of weekly quizzes gave consistent improvement in the students’ results compared to the initial results and decreased the failure rate for these subjects.

In his first semester teaching at Miri, the researcher’s discovery was that the Miri students’ performance was significantly lower than that of the Bentley campus students which led him to reflect on the characteristics of the Miri students. Through his observation, he noted that the Miri students were less mature, less motivated, more teacher dependent and had a less questioning stance than the Bentley students. It was clear that while different learners employ different strategies to learn, the Miri students were not actively employing effective learning strategies. Adult and child learners serve to illustrate the difference. Adults generally assume responsibility for themselves and others. Adults differ specifically in self-concept, experience, readiness to learn, time management, and orientation to learning. Traditional teaching applied to children is different from adult teaching; the teacher just fills the student with knowledge sometimes without their understanding the importance and responsibilities of learning. It has been likened to the “jug and mug” with the big jug (the teacher) filling up the little mugs (the students). Students are asked to pay attention and have few opportunities to make use of their own experience.

B. Klatt (1999) neatly captures some of the key differences between children and adults as learners presented below:

The children rely on others to choose the material to learn, accept any information being presented, and expect that the information obtained will be useful in their future. They have very limited life experience and that is why their minds are like blank slates and they cannot serve as knowledgeable resources.

The adults, on the other hand, decide for themselves what should be learnt, expect new knowledge to be immediately useful, and validate new information with their experience. They have substantial experience, they have their own viewpoints, and they can serve as knowledgeable resources.

In the Bentley-Miri study, both groups are young adults, but it was observed that while the Bentley students were more adult in the learning approach, this was not the case with the Miri students. The final results of the first semester of the researcher’s teaching stint showed Bentley’s cohort as performing considerably better than Miri’s, confirming the researcher’s observation. Furthermore, the researcher was concerned that deep learning (Biggs, 1999) was not taking place in the Miri cohort.

Tertiary education students may be said to have two distinguished “approaches to learning”. We refer to Marton and Saljo in their identification of surface and deep approaches in case studies of tertiary students. Biggs used similar categories and developed the Study Process Questionnaire to study tertiary learning and document the deep surface and achieve effective approaches to learning. To follow Biggs, consider first the surface approach. In this approach - the student is willing to engage in learning tasks and pass minimally either because life will be
even more unpleasant if he does not, or because he/she wishes to gain a paper qualification with minimal trouble or effort. The students following this approach focus on the most important topics, known from past examinations and aim only to reproduce them. It may affect their understanding of the subjects or the meanings and implications of what is learned.

The deep approach on the other hand is motivated by intrinsic motivation. In this case the student is committed to learning, which means that the student relates subject material to personally meaningful contexts or to existing prior knowledge, depending on the subject concerned. This process involves processes of a higher cognitive level than rote learning - searching for analogies and relating to previous knowledge.

The development of either approach depends on two main influences on the student: personal, and the teaching context. From the personal side there are some factors in the student's background or personality which seem to be associated with a Surface Approach and others with a Deep Approach. From the teaching side, time pressures, examination stress, and using test items that emphasize low level cognitive outcomes encourage a Surface Approach. At the same time, learner activity, student-student interaction, and interactive teaching, particularly problem-based teaching, encourage a Deep Approach. In this situation the teacher can help the student change the learning approach by changing the assessment method.

Method and reflection

The aim of the study was to try to encourage deep learning among the Miri students without upsetting the normal classroom circumstances of university teaching. The study was based on two sets of observations: Bentley and Miri. The Bentley data was gathered from the Engineering Mechanics 131 (EM131) conducted in Bentley Australia. Here, the teaching of EM131 was conducted in the standard Australian style. This teaching used the traditional method of delivery - the traditional lecture, tutorial and laboratory work. The students were typical Australian students, who were used to the culture of active class participation and independent learning. Another variable was the large student numbers of the Bentley Campus. The large population size was comfortably catered for through the traditional lecture, tutorial and laboratory work. The assessments were the usual mid-semester test, laboratory reports and assignments – two per semester for both parts of EM131 on Statics and for Dynamics.

In Miri, the main researcher followed the same arrangement that was used in Bentley, when he was teaching the unit at Miri for the first time. The results of the assessment of his students in Miri were poorer than in Bentley. And the difference was large – about 20% in average. He started to reflect on whether his teaching was good enough or whether other factors affected student performance. After comparing his results with the results of the subjects taught by his Miri colleagues, he found similar correlations. It was a sign that something different was causing the problem. He started to think about what could create this difference between the Miri and Bentley results. He recalled his Australian teaching experience and tried to compare the teaching style used in Australia with Miri. The teaching was done in similar manner, but the results were not similar. So he turned to consider the students - their level of competency, their background, their culture.

What he realized after considering all those aspects was that the students in Miri were significantly different from Australian students. Firstly, they were less mature (younger in average) and did not have the same life experience. Secondly, the teaching in most schools was in the national language, Malay. Hence, the students had English language proficiency problems, which created a lack of understanding, despite their having passed the English placement tests and English exams. Thirdly, cultural differences also have effects on teaching and learning. One cultural difference is that Malaysian parents do not allow their children to do simple blue collar tasks – they are not allowed to even try repairing household items. Therefore, do-it-yourself knowledge is not common among the Malaysian population. The result is that Malaysian students fair poorly with hands-on skills. Also, the average Malaysian family has too low an income unlike the Australian family, to afford a PC at home. That creates a lot of problems with programming and computer usage for Malaysian students. The average Australian student, on the other hand, has access to an advanced computer 24 hours a day. Finally, the cultural difference makes Malaysian students understand friendship wrongly – they believe that they should help their friends by allowing them to copy their homework, reports and assignments.

That is why when it comes to using an assignment as assessment, the same assessment used in Australia cannot be used in Miri as it does not give a true picture of learning and does not allow for fair marking. The researcher analyzed the Miri assessment results and noted that groups of the assessment results were identical. Actually, after the first assignment marking, he had about four groups of similar papers and it was not possible to tell the
original from the copied work in each group. There was so much multiple copying carried out which resulted in difficulty of identifying the original work.

There was the added problem that Malaysian students were used to the children’s classroom culture described by B Klatt (1999). Their years of being accustomed to a passive classroom culture of acquiescence and dependent learning meant that the Miri first-year students were more like child learners than adult learners who take responsibility for their own learning. The Miri students were not adjusting successfully to the Australian type of classroom culture that was transplanted from Bentley to Miri. Bentley classroom culture actually requires a more adult approach to learning.

In relation to the Miri assignments, the researcher when recalling his Australian teaching experience could not remember an instance of Australian students submitting multiple copied assignments. It was probably due to the Australian students not having the habit of sharing their projects or other forms of assignments with their colleagues. In the case of his Miri teaching experience, copying – probably thought of as sharing – was common, but most important, it was affecting the learning adversely.

He reflected on the two classroom situations and decided to change the practice at Miri. He introduced the quiz system at the start of each tutorial class. The quizzes were easy and short, and related to the previous week’s topics. From the start of the new semester, when he began teaching Engineering Dynamics 134 and later Engineering Mechanics 100, he notified his students about the new practice. This made for better course delivery and also gave him the possibility to be fairer during the marking exercises. It was easier to consider the tutorial participation of each student and level of his or her understanding of the course. Also after the marking of the individual papers, he could easily understand what extra work needed to be done if the topic had not been clear to the students. And if it was necessary to cover some additional parts of the course, it could easily be done during the next class discussion.

This type of classroom assessment focuses on the primary attention of teachers and students on observing and improving learning, rather than on observing and improving teaching. It provides information to guide the teacher and students in making adjustments to improve learning. Students started coming to see the teacher during consultation time to find out which topic was going to be covered in the next quiz and they also became more active in discussions than before.

In general, the quizzes given provide a chance for the students to reinforce their grasp of the course content and strengthen their own skills at self-assessment. Thus, the teacher can find the answer to the question “How I can help students learn better?” This assessment’s main purpose is to improve the quality of student learning, with assessment providing classroom feedback for better teaching as well as learning. One further advantage of this classroom assessment is that it attempts, by using student feedback, to make learning more systematic, more flexible and more effective.

**This kind of classroom assessment is based on several assumptions**

- The quality of student learning is directly related to the quality of teaching.
- To improve their effectiveness lecturers need to have specific and comprehensive student feedback.
- To improve their learning students also need to receive appropriate and early feedback.
- This type of assessment most likely improves teaching and learning.
- Quizzes are also very good motivation tool for students to improve their learning.
- To conduct quizzes the teacher does not need special training but can achieve personal satisfaction.

**The preparation of the classroom assignment involves three steps:**

- Planning – plan and conduct simple and quick quiz.
- Implementing – make sure that students know and understand what you are doing.
- Responding – to motivate the students to become actively involved, close feedback loop by letting them know the results of the assessment.

For the assessment to be successful, it is necessary to have tried it on yourself. Also it is important to allow the students enough time to complete the assessment, and to let them know how to use the feedback information to improve their learning. When they understand the purpose of the assessment, they generally respond more positively to it and in time, acquire the assessment-feedback loop as a regular learning strategy.
Using all the above, the researcher implemented and ran quizzes every week during tutorial classes. He did some extra teaching to help students prepare for the weekly classroom assessment. An additional weekly tutorial was held for those who needed it. The student attendance was high: about 70 – 80% of students attended the additional classes. Student interest in these classes increased.

The quizzes were prepared by using these strategies: spending adequate amount of time to prepare the quiz (think carefully about the learning outcome and choose right items to suit these outcomes, range of difficulty and time necessary to complete), matching material for quiz to the content you are teaching to achieve objectives of the course, trying to make quiz to be reliable, valid, and balanced, and making questions to test the skills rather than recalling alone.

During these quizzes he allowed students to use any sources, but set the time limit for them to perform the quiz. Usually the time limit was about 10 minutes and rarely about 15 minutes in maximum. These quizzes were required to be performed quickly so as not to lose class time. Since only a limited time was allowed, no one could copy the answers of one’s neighbor. Also there were no strict rules implemented during the quizzes so that the students were relaxed.

**Results**

At the initial stage of implementation of this assessment, the students’ performance was not very good, but with time it improved considerably. If at the first test the success rate was around 45 – 50%, the latter stage success rate increased for some quizzes up to 85 – 90%. Using this technique, the average pass rate increased and the disparity with the results of Australian students in Bentley was reduced. The difference between the final results for the unit decreased to about 5 – 7%. Also the mid-semester test results also improved significantly.

The amount of teacher preparation did not increase significantly in total. It took some extra time to prepare the quiz questions, but decreased time for marking for each individual quiz compared to marking the assignments. It has also generated extra time through the additional classes, but the learning outcome achieved had much better value and brought great satisfaction to the lecturer.

The quiz method of teaching also drew the students away from their habit of copying since the quizzes were too short in duration for them to copy and they were supervised by the teacher.

**Conclusion**

Teacher reflection and resultant action which created a more student-engaged classroom culture appears to have had a positive effect on the performance of the Miri group of first year students. The importance of assessment as a diagnostic device and motivational tool in teaching and learning seems evident. Assessment, which happens after teaching to test what has been assimilated, works like a back-stream to change the learning continuum upstream. This is termed positive backwash in language test literature. Different types of assessment serve different purposes. It is necessary to distinguish their differences and to use separate assessment techniques to achieve better results in student learning. The results of the Miri classroom intervention described above suggests that the educational culture that Miri students were nurtured in affected their learning and had therefore to be taken into consideration in planning lesson delivery. The comparison between the Bentley and Miri students revealed that students from different cultural learning backgrounds used different learning strategies. Hence, teachers need to be aware of these differences and devise ways to counter the learning strategies they perceive to be obstructive to deep learning.

In his classroom experiment, the researcher’s systematic intervention in the form of regular quizzes that tested understanding resulted in a significant improvement in the students’ exam results. But it is difficult to say whether this improvement was due to deep learning or to an achieving orientation triggered by the weekly quizzes. To speculate, the improvement could have been the result of a composite of factors: raised student motivation, a better learning strategy, systematic learning, and the extra tutorial hours. Whatever the precise nature of the teaching-learning experiment, the modified course delivery of the teaching of different Engineering Mechanics units did help to improve the teaching as well as the learning outcome. The modification in the assessment, which was a simple inclusion of a weekly quiz to test understanding as opposed to knowledge of isolated facts, as well as the added tutorials in which students learned to ask questions, reduced the failure rate and increased the student and teacher satisfaction level. The long-term effect of this modified classroom culture of learning is yet to be determined.
References


Abstract

This paper explores Vygotsky’s concept of the Zone of Proximal Development (ZPD) in the Moral Education (ME) classroom with the objectives of encouraging all students to reach a higher level of development. Small groups of students in different demographic settings were involved in a participatory action research (PAR) project. Using the Malaysian ME classroom as a case study, various examples of group conversations based on moral dilemmas provided by PAR participants themselves are discussed. The focus is on the dialogic learning process that illustrates ways that collaborative processes precede individual student’s ZPD and the divergent views of each individual which focuses on group decisions and understanding. The ZCD is seen critically with the possibility of an extension into a zone of collaborative development (ZCD).

Keywords: dialogic learning, moral education, zone of proximal development, zone of collaborative development

Introduction

Learning is part of human nature where individuals acquire knowledge, skills, and values to behave according to the needs of the society then and there. This process requires the need to synthesize different types of information. According to Schacter, Gilbert and Wegner (2011), learning may be reflected as a process rather than a collection of facts and procedural knowledge and learning is experiential. Experiential Learning Theory focuses on a holistic model of learning process (Baker, Jensen & Kolb, 2002). The focus of the theory is experience where knowledge is constructed through the transformative reflection on one’s experience. Learning can take many forms and functions. Learning can be formal or informal. However, both formal and informal learning should not be seen as separate entities, but as parts of a continuum. Whatever the process and product refers to, there is a final consent on transfer of knowledge, skills or values from one side to another or even mutual. Learning does not take place in vacuum thus the need for dialogue in written or spoken form.

Dialogic Learning

Dialogical learning has been in existence for as long as man can remember and frequently mentioned in current day’s discussion. In institutions of learning, Socratic dialogues are famous to be utilised by educators to get students involved actively in topics which they are teaching. In ancient Hindu scriptures of Mahabharata, the warrior, Arjuna was dialoging with Lord Krishna on life and much has been learnt based on the ancient wisdom related by Lord Krishna. Sen (2005) agrees that Indians by nature have a habit of asking questions. In ancient China, most of the philosophical ideas of Confucius about values in life were introduced through dialoging with his fellow students and members of the ruling nation. Dialogic learning is a theory of learning and teaching. Learning takes place through actions of curiosity, dialoging and reaching to consensus. Engaging in meaningful conversation and discussion increases the participants’ thinking and learning skills. By asking questions, providing answers and reflecting on both, participants connect ideas, challenge their own and others assumptions, absorb and reflect on the dialogue process and knowledge shared. Learning to conduct dialogues or to speak has the reciprocal effect of speaking to learn and conducting dialogue in real-life. Dialogical learning is a type of learning based on communication, agreements and disagreement that different individuals
provide based on their own valid premises within an argument. An argument can be valid if the truth of its premises is consistence in process and conclusion and every step it’s being argued. It enables individuals to think at a higher sphere and develop their thinking ability. They are able to conduct a dialogue intellectually and make their own dialogic learning in future similar situations. This takes us to the works of one of Lev Vygotsky’s theory on the zone of proximal development which focuses on the dialogic learning process. Lev Semyonovich Vygotsky (1896-1934), a Russian scientist and also educator believed strongly in the processes of dialoging which allows individuals to process information and make them aware of issues that are discussed. During Vygotsky’s time, citizens of Russia and around the world were reconstructing and renewing their society. It was during this post-revolutionary period that Vygotsky began his quest for a new psychology that brought together a unified notion of how students learn and develop (Vygotsky, 1978). Language and action, for Vygotsky, were tools of mediation for learning. Speaking reorganises students’ thinking, and their language comes to them as a cultural heritage through their interactions with others. According to Vygotsky, what a child or individual learns today with the help of peers or the more experienced one (Flecha, 2000) would be able to be utilised by that child or individual in other similar instances. Those interactions and dialoging create Zone of Proximal Development (Vygotsky, 1978). This, according to Vygotsky encourages individuals to reach higher levels of development. Hargrave & Senechal (2000) agrees with Vygotsky that children in a dialogic-learning condition show significantly larger gains in vocabulary than children in a less dialogic learning environment. However, in my own research experience, I found that the ZPD that Vygotsky recommended does not comply completely to the Malaysian scenario. Students can learn from others but they need to reflect upon their own communal obligation when deciding on a moral solution. Thus I adapted ZPD and introduced Zone of Collaborative Development (ZCD).

![Figure 1: Process in Zone of Collaborative Development (ZCD).](image)

ZCD was developed with a few reasons. Firstly, dialogic learning in Malaysian is located in a collaborative environment which is usually within the four walls of the classroom. Secondly, the backgrounds of students in Malaysian classroom are diverse. They come from a multicultural background with different religion and cultural identities. Thus during their dialogic processes, ZCD encourages the students to use their cultural backgrounds and differences to express themselves during the learning. ZCD also encourages students to learn from each other’s cultures and experiences because of the equality in power sharing implicit in the process of collaboration. Thirdly, since the moral dilemmas are emerging from the students (refer to methodology); the dilemmas might cover a vast area of issues that students would be looking into a collaborative manner. ZCD has the potential to encourage students to be responsible for their own dilemmas and that of their peers. They would be able to use their own knowledge within the focus group or class discussion and develop a shared moral language. As Schacter, Gilbert and Wegner (2011), state that learning could be reflected as a process rather than a collection of facts and procedural knowledge and learning is experiential. Thus ZCD allows for all those stages and processes to take place.

**Moral Education**

Moral Education has been in existence in Malaysia since 1983 as a core subject taught to the non-Muslim
cohort in primary and secondary schools. The focus of the subject is to inculcate universal values among students and ensure that they are morally and socially responsible for their thoughts, feelings and actions in a multicultural society. (Moral Education Syllabus, MOE, 2010). Students are also taught certain skills to ensure that the values that they learn are applied accordingly in their daily lives. While non-Muslim students study Moral Education, Muslim students study Islamic Education. Though it is almost three decades that Moral Education has been in existence in Malaysia, there are many setbacks about the subject in the way it is being implemented in schools. Syllabus, teachers teaching the subject, the assessment method and how effective it is as a humanistic subject has always been questioned and evaluated. The worst case scenario is the proposal to abolish the subject with the notion that it does not provide any economical value to the already burdened school system of subjects, exams and grading. However, with the implementation of School Base Assessment in primary schools starting from Year 1 in 2011 and Form 1 in 2012, there is great hope that Moral Education will regain its dignity and pride to stand alone as a subject that is in line with the National Education Philosophy which focuses on the holistic development of a student.

Moral Education is ideal and effective if taught using an eclectic approach and focus on the active learning approach. Some of the common approaches used in Moral Education include cognitive development approach, value analysis, value inculcation, social action, cooperative learning and many more of which the central idea is in dialogic learning. All these are basically active learning approaches which put the students as the centre of learning and encourage the need to make the lessons as authentic as possible. One of the basic complaints about Moral Education is that students are forced to memorise values and definitions of values which is regurgitated during the SPM examinations and does not really reflect the values that students have or practice. This can be resolved by encouraging students to use their own real-life dilemmas in learning Moral Education (Vishalache, 2012) using dialogic learning approach.

Methodology

This research was undertaken in three different types of secondary school in Malaysia. Students were from an all girls school, an all boys school and a co-educational school. The reason for choosing such a method is to also analyse if there is any difference in dialogic learning among different genders in different learning environment, which did not show much variance. The participants were 22 young adolescents between the age of 16-17 years and come from nuclear and extended family settings. They showed great competency in communication with one another and the researcher. The participants were from Chinese, Indian, Punjabi and mixed parentage families. They belong to different faiths such as Hinduism, Buddhism, Christianity, Sikhism and Taoism.

The research was based on a participant action research (PAR) framework (Kemmis & McTaggart, 2005). Participants presented their own real-life moral dilemmas and a semi-guided discussion took place. Participants were free to debate, argue and discuss the moral dilemmas presented to resolve the issues that arose. Data were gathered through focus group transcripts, interviews, students and researcher’s journals and a modified form of participant observation. Participants constructed their own working agreement (WA) and had the opportunity to renegotiate the original regulation they themselves constructed with the help of the researcher. Throughout the research, there was plenty of dialogues and discussions taking place. Participants were provided with informed consent forms and had to also obtain consent from their parents. This is in line with the ethics of research conducted among students of under age.

Discussion

For the purpose of this paper, a dilemma is shared and the process is analysed to relate to the dialogic learning that is taking place. To ensure that no participants are disclosed in any way, schools were given pseudonyms and participants chose to have alphabets as their names. In the real-life dilemmas discussion process, students started off with some ice-breaking sessions with the researcher to ensure the building of trust in later stages. Next was the construction of the dilemmas in which the researcher encouraged the participants to construct their own or one that is of concern to them but belongs to someone else. They then went on to discuss the dilemmas and find solutions based on their own funds of knowledge and probing questions from the researcher. There were reflective sessions in between the cycles of discussion and a final reflective session for the series of discussion sessions. Here is an example of a dilemma shared by the students in the all girls school. It is a clash between respecting the authority in school and how students feel that respect should be two-way.

Dilemma I: Respect versus authority
My Science teacher is my worst nightmare. She torments the minds of her students as half of us can’t seem to understand what she talks about. She doesn’t care about class discipline, or respects us as students. Half of the girls would be sleepy, half dead’ or doing their homework during Science as they want to make the best out of time. It’s not that we don’t want to study… we want to… basically I love Science but this teacher makes me despise the subject. I’ve tried to listen to her and pay attention to her teachings, but I can’t. Many students have tried talking to the teacher and politely voiced concerns about her teaching. But she doesn’t seem to bother. She believes that passing the examination is good enough. But we want to excel and make use of the Science that we learn. I wish we could talk this out with her. (Dilemma 4# Kekwah)

Listening is one of the most valued qualities of an educator – but is all too often lacking (Taylor, 1996). According to Shapiro (2008), “when you listen to the feelings of others in a respectful way, people will like you better and treat you better too” (p.7). The student in the above conflict feels that the lack of mutual respect between teacher and students is the cause of the conflict above. They want to be listened to and be respected in mutual ways. Here is an excerpt based on the conflict above which details why the participants are having conflict with the Science teacher:

E: When we ask her, she writes concepts like “F=Ma”, that’s it…what it represents also we don’t know. Instead of clearing our minds, she confuses us.

F: She always says, “You’re all intelligent students so you should find things out for yourselves”.

A: Because of her, Science has become a boring, rote learning subject. We don’t go to labs to do experiments. We do badly in our examination and get scolded at home.

C: She always says that Science is not a girls’ subject. Even if we get minimal grades, she says it’s good enough.

E: But that’s not fair because some of us love Science and want to excel in that subject.

F: I feel there’s no girl or guy subjects so the teacher shouldn’t put such ideas into our heads. (Kekwah)

[Non-verbal communication (Nvc): Several participants were giving piercing looks and nodding their heads every now and then; evidence from video recording (efvr)]

In my own observational journal, I have written how the students were using body gestures such as nodding of head and main mata (making eye contact) to each other when they were discussing this dilemma and agreeing with each other that by just presenting content in the Science subject, the teacher concerned was not respecting them as students in the classroom. In the second PAR cycle of discussions for this particular moral conflict, students shared much in common as they all had the same Science teacher and faced the same problems as their friends. But the real-life dilemma became more complex when some participants saw different perspectives of the teacher and of themselves which I will elaborate on further as I continue. Below is an excerpt from the second PAR cycle which shows their concern for the seriousness of the conflict and how they felt about the teacher and the need for mutual respect:

C: Teacher goes on teaching even if students are sleeping in class. At times we feel she doesn’t even realise if we exist or not.

E: We wish she showed us more TLC.

I: What is TLC?

E: Tender love and care.

G: If the teacher really cares, we won’t have to go for tuition and we can clarify things with her. (Kekwah)
At this stage of the PAR cycle, I observed the students relating to each other in how they felt about the dilemma - they went on and on to express their feelings about a teacher whom they wished would give them mutual respect. In this cycle, there were two participants who just exchanged glances between themselves without contributing much to the discussion and I had noted that. By the end of this cycle, some students expressed how they felt about sharing with their friends during the PAR cycle. The journal extract below explains how relieved one participant was when she found that her dilemma with the Science teacher was not just her conflict alone:

Since the start of this year, I have been stressed every time I go for Science because the teacher seems to be in her own world. I can’t understand what is being taught. I have tried telling her but it was no use. Now I am relieved because some of my friends too have the same problem. I hope we can do something about it. (Kekwah)

In ZCD, learning and development does not always occur smoothly. What is implemented in collaboration is later reflected upon by individuals who are able to self-help and internalise the values or skills learnt. In the above situation, the student is in the interpersonal process of collaborating with her peers. That was the end of PAR cycle two at which point I asked the students to go back home and reflect upon their discussion. In the following PAR cycle, students had just finished that particular Science teacher’s lesson before they came to see me. They had more to say in this session:

H: She says we are smart students so we should find things out on our own.
A: She says Science is not a girl’s subject so if we get minimal grades its good enough.
B: But that’s not fair because some of us want to excel in Science. (Kekwah)

At this stage, the participants (except for the quiet duo) were all getting very emotional about their Science teacher. They appeared to be unable to rationalise anything that the Science teacher does and feel that she is to be blamed for their boredom in class, their sleeping in class and their minimal grades.

The two students who remained quiet, just observing their friends complaining throughout this and the previous cycle appeared to be disagreeing with the rest of the group. Based on video evidence, they were communicating with each other through body language - specifically, looking at each other and shaking their heads from left to right (as a sign of disagreement with the other members of the group). However, they were neither agreeing nor disagreeing with their friends verbally. From their body gestures (hardly any nodding but looking doubtful when other participants kept complaining about the Science teacher), I realised that they might have something to share with the group. So I questioned them specifically and here is part of their response discussion which indicates that they are the capable peers in this conflict:

F: Maybe we should not sleep in class anymore but we need to get the message across to her about how we feel in class.
D: We can talk to her as a class or send our class monitor as the representative. There are a few alternatives so we can try different ways and see which brings the best outcome.
F: We’ve got to be patient with her too… poor old teacher. (Kekwah)

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The above excerpt shows the input of the capable duo who were quiet in the earlier PAR cycle but who, after encouragement to talk, gave a different viewpoint on the whole dilemma. After these two participants gave their
views, the rest of the group were not so emotional but started to complain less and reflected on the issue. Some even agreed with the first quiet duo as shown in the excerpt below:

A: Maybe F is right. Maybe we don’t understand the teacher.

H: We might have to think of her too. (Kekwah)

[Nvc: The two quiet participants who gave their views earlier smiled and nodded, and the rest of the group were slowly nodding their heads; efvr]

After listening to the capable duo, the students were at their self-help and reflection stage. They were analysing the conflict within themselves too. We had to stop our session at this point and they filled in their conflict resolution journals. What happened within the next two weeks was the transformation from moral thinking and moral feelings to moral action. In the next PAR cycle which was the reflective session for the Science teacher dilemma, my participants shared with me that they had spoken to the teacher concerned. She was shocked when they expressed that they cared and respected her but felt they needed it to be both ways. The teacher was not angry with them but welcomed more such open dialogue with the class so that they can progress together. She apologised for being insensitive to their behaviours in class. She did remind them that she was going to be stricter but the group did not mind as long as she understood and respected them. It was a mature act on part of both students and teacher and it reflects how ME comes to life using real-life moral dilemma discussion (ReLiMDD). As for ZCD, the students had collaborated, got the help from the, at first silent, capable duo, internalised what was discussed and used the skills to resolve the dilemma amicably with their Science teacher.

During the initial cycles of my PAR research, the two capable peers who helped the group see alternatives within the conflict did not speak up. As the researcher I encouraged them to share what their stand was. This was based on my observation of their body language and in the video evidence (especially their facial expressions which showed anger and doubt) which indicated disagreement when the other members of the group kept complaining about the Science teacher. However, because they saw and were able to present a different perspective from the rest of the group, they seemed to be the more capable peers who, in ZCD terms, could start the others thinking and looking at the teacher from different perspectives.

According to Shapiro (2008), facial expression is an important way to communicate feelings with others. If an individual gives angry or mean looks to people who care about them or to people who are trying to help them, it is as bad as yelling at them. I noticed during the discussion session that these two Kekwah participants were passing such expressions to each other and other members of the group. When I later spoke to these two participants, they told me that the Science teacher was a nice person but because she could not deliver proficiently in English, she always kept to herself. Since 2003, subjects like Mathematics and Science have been taught in English in Malaysia, and teachers trained in Malay Language found this policy hard to cope with.

When my group and some of their other classmates had a discussion with the teacher, she was happy that the students cared and respected her. She understood the problems of the students and hoped to work with them. The other members of my group also saw the actual problem that their Science teacher faced and later developed empathy for her. It is worth noting that what started as a group collaboration ended with the individual members reflecting upon the issue, and what is even more meaningful is the decision that they took upon themselves - to meet up and discuss the issue with the teacher. Feeling was involved in the identification of dilemma with the Science teacher, thinking was required for discussing the appropriateness of possible decisions, and action taken in the reflective decisions which led to real moral action taken and reflected upon again at another time. This, then, is an example of moral thinking, moral feeling (capable peers explaining to other group members what the teacher might be going through and building a sense of empathy within the group) and moral action (meeting and discussing with the teacher what they felt and later reflecting during the PAR reflective cycle) come alive.

The Kekwah participants were engaged in a social constructivism type of decision-making (Cottone, 2001). According to Cottone, this type of decision making involves interaction with other individuals. The interactive process between the Kekwah participants that involved voicing issues, negotiating and reaching consensus led them to take the moral action which they reflected in the reflective session. It is all part of dialogic learning (Schacter, Gilbert & Wegner, 2011).

With the ZCD, the students’ experiences expand and they are able to resolve more complex dilemmas but still within the relational perspective. This is one gap that I see consistently between my research and the current ME syllabus for secondary schools. The key difference between the present ME syllabus and the findings of my research is that the syllabus states values and learning areas in a non-relational manner far from the students’
experiential daily lives. Through the use of discussion, dialogic learning takes place and supersedes just the cognitive aspect and goes on to the action that Moral Education is also focussed upon.

Conclusion

The concept of dialogic learning is not a new one. In the discussion above, it shows that given the appropriate learning environment, students are able to use dialogic learning strategies to go on to resolve dilemmas that they face. They made the Moral Education philosophy come alive and are able to transform their own learning and experiences. It goes on to the theory of dialogic action (Freire, 2007) and the dialogic inquiry approach (Wells, 1999). From the research conducted and the discussions so far, it can be concluded that in dialogic learning, everyone is part of the learning group or community and each have a role in making a useful contribution. ZCD allows for such situations to take place. Within the dialogic learning process, the learning group has respect for each participant’s experience in the dialogue. The working group constructed in the early stages encourages stages of give and take and negotiations to take place. True learning takes place as students use the dialogic learning as a stepping stone to further proceed to dialogic action and it is transformation in nature.

In dialogic learning, it becomes meaningful for the participants. As one participant mentioned, “If I learnt Moral Education as what I have done here, I would have solved many of my daily moral problems”. Learning in dialogic learning is part of building personal and social identity as well as character in society. It provides the possibility to discuss, decide, create and transform lives of students from little things around them to world issues that are challenging. Dialogic learning creates true, deep learning which is respectful of the “other”. When students undertake such learning process they tend to see both sides of a coin and are able to decide in a mature manner. As Vygotsky spoke of learning that is more than just passively receiving information and responding to it. It includes the ideas generated in the process of dialectical discovery and is closely tied to the sociocultural context (Wink & Putney, 2002). In dialogic learning, differences in viewpoints are a source of richness and all opinions are considered and are valid in knowledge-building. In ZCD, the four processes of sharing and collaboration, self-help and reflection, internalisation of values and skill based on local context and constraints and recursiveness through prior stages when values conflict not only encourages moral decision making when faced with moral dilemmas but is applicable to all other conflicting situations. The dialogic learning process provides the pathway for such a transformation in education to take place. However mishaps like control by authority or extrovert domineering characters should be resolved during the construction of working agreement so that equality in power sharing exist.

References

Abstract

The purpose of this study is to investigate the effects of interdiscursivity when learning writing skills for professional communication. Interdiscursivity in this study refers to students’ interpretation of the content, context, and style of language used to produce their final communication. This final communication is influenced by students’ perceptions of writing conventions. Thus, it is essential for tertiary level students to have letter writing skills that may be applied to various professional contexts and communications. With the limited contextual knowledge of these students, it is thought that their letters may only be based on content knowledge because they may not be able to apply the letter writing skills they learned prior to their tertiary education. Added to this, letter writing tasks for professional communication are most likely more challenging for English-as-Second-Language learners. A cohort of eighteen students taking a pre-intermediate level English course was used in this study. The same set of letter writing tasks was used for pre and post letter writing lessons. Subsequent to the post task, a group interview was conducted with this cohort to assess their perceptions of the writing tasks and lessons. The interpretive approach was used to categorise and analyse common emerging viewpoints under various themes from the interview. The results showed that students perceived that they performed better in their letter writing task because the problem based learning had helped them focus on appropriate writing conventions, the style of language communication, and the format of the task. They were more aware of the context and communicative goal of writing. As such, it is important that students are taught to make proper linguistic choices and determine content suitability for effective communication in workplace.

Keywords: Students’ perceptions, interdiscursivity, writing skills

Introduction

Students learning English as a second language (ESL) often have problems applying newly learned skills when writing business letters and memos as well as simple reports, skills which are required of individuals in any work place. These skills are often difficult to master especially for ESL learners. As such, Price (2005) noted that ESL students will often draw upon their own understanding of writing conventions which will influence the final communication that is produced. This may also be the result of the interdiscursivity that takes place as a consequence of the students’ language use which is complicated by the fact that they are learning a second language that is not culturally familiar. Interdiscursivity in this context refers to the interpretation and mixing of
different statements in a text and the social and cultural meaning that can arise from it (Wu, 2011). Candlin (2006) pointed out that interdiscursivity takes place in the workplace and is very closely linked to the social-cultural mix of individuals in it. Thus interdiscursivity, both dynamic and active, can occur within and across activities.

Content versus context in ESL learning

Lee, Penfield, and Buxton (2011) noted that ideally among ESL learners, content area instruction should provide a meaningful context for English language development while improving language skills and providing a means of academic understanding. However, in reality ESL learners are often confronted with the demands of academic learning with a yet un-mastered second language without the instructional support that they need. Added to this, Lee (2012) noted that students not only need to have general literacy but also need to acquire language proficiency in order to effectively participate in a working environment that requires the use of English as a means of communication. In this case literacy means the ability to think and visualize concepts which would enable meaningful conversations to take place. These students must have a certain degree of proficiency that allows them to employ terms that have unique meaning in a social as well as academic context.

According to Hernandez (2003), drawing from students’ prior learning experience is a useful tool to help them become comfortable with the language by using a context with which they are familiar. Relating the subject matter to students’ life experiences will also help them gain mastery of the content as well as the English language. In such instance, students may want to participate but may lack command of the second language that will enable them to articulate what they wish to communicate. As such, allowing students to share their points of view using the platform of interdiscursivity may help them overcome the language barrier. In this case, communication may be in the written as well as in the oral form. The social context of the students will also be taken into consideration. Ariffin and Husin (2011) noted that most individuals who use ESL in a multicultural and multilingual environment will often use both their native language as well as the second language interchangeably. This is most commonly noted among individuals who speak more than one language and who often use these languages interchangeably in the midst of conversation. Although there is an on-going debate that mixing a native language with the English language may take away the purity of the language, this could be seen as a communicative strategy.

The use of interdiscursivity when learning writing skills

According to Bhatia (2008), when analysing professionally written communication, the context, as well as the culture of the profession in which an individual is engaged, needs to be taken into consideration. Such an analysis needs also to take into consideration the social and cultural backgrounds of the individuals working in the profession. When applied to ESL learners, it implies the need to engage these students by helping them with the context of their writing through group discussion. Such discussions will help them frame the content of their writing with the context. This process can be readily aided through problem based learning (PBL). The approach to introducing professional writing to students using PBL, according to Alanko-Turunen (2005), is designed to challenge students with problems that they will encounter in real-life working situations. With students working in small groups, interdiscursivity can occur in each of the groups, thus facilitating a sharing of their socio-cultural norms as well as establishing a shared context. This process is facilitated by having students in the various groups share their contexts and also their prior learning. In this PBL approach, situated learning will also take place where the contextual dimensions of knowledge and cognition can also be explored. Thus, learning takes place as a result of participation in the discussions. Added to this, the opportunities for ESL students to communicate using the second language is increased, giving them more exposure to the language in a work environment.

The Present Study

This study will attempt to obtain ESL students’ perceptions of carrying out professional communication of writing tasks in the form of letters, memos, and newsletter to various stakeholders in an organization. These students will be taught using the PBL approach which allows for situated learning, as well as interdiscursivity, to take place. There has been little attention given to strategies for setting up contexts for students to learn content material that is not familiar to them. It is hoped that through interdiscursivity students will be able to use their prior knowledge to aid their learning process. The two research questions (RQ) underpinning this study are:

RQ1. What are students’ perceptions of interdiscursivity when learning about professional communication?
RQ2. What are the improvements to students’ professional communication skills?
Methodology

A cohort of eighteen diploma students taking a pre-intermediate level English course was used in this study. The same set of letter writing task was used to determine skill mastery before and after the letter writing lessons. Subsequent to the writing lessons, a group interview was conducted with the cohort to assess their perceptions of the use of interdiscursivity on their writing tasks and lessons. The writing task was chosen from questions printed in their English textbook. The interpretive approach was used to categorise and analyse common emerging viewpoints under various themes from the interview (Radnor, 2000). The analyses were then used to answer the research questions.

Informed consents were obtained from all students taking part in the study. They were also told they could leave the study anytime they wished and all data from the study would only be viewed by the researchers.

Results

RQ1. What are students’ perceptions of the effects of interdiscursivity when learning about professional communication?

a) Worry about completing task created anxiety

All students perceived that they were uncertain about how to begin their letter writing because they were not sure of the professional writing conventions they had to use. The initial process of writing the letter was perceived as confusing. They resorted to relying on their previously learned letter writing skills. For instance SCK commented:

‘I understood the question well but was confused with how to start. I just used what I learned last time about letter writing.’

WCF also commented likewise:

‘I had no problem knowing the requirement of the task, but I was confused with how to begin the writing task. I was not sure so I began with what I knew.’

Discussion

All students perceived they were not confident about completing the writing task. As such, they produced communications that were based on their own understanding of writing conventions which support findings by Price (2005). Students perceived that using their prior learning experience was one way of completing these tasks. Even though these students understood the question asked, they were apprehensive about completing it.

b) Format perceived as complicated

All of the students perceived that the format of letter writing was difficult and complicated. They were confused and had difficulty recalling what they had learned prior to these lessons. For instance, CK commented:

‘I only remember there were two addressee,s but I didn’t remember the sequence. I was not sure of the position of the information in an address too. The date was easy but writing the subject heading was difficult.’

Likewise, CM said:

‘The format is confusing. I just couldn’t remember some of the format. I just wrote with what I learned from my Bahasa Malaysia paper, and I thought it is of the same format.’

Discussion

Seventeen out of eighteen students were confused about the format of the letter. They were not certain whether they were writing according to the proper sequence. However, they managed to complete the letter using formats learned from other language papers which were different from English letter writing. This again supports findings by Price (2005) that students wrote based on their own understanding of the writing conventions. It would seem that their prior knowledge had caused them to think that all letter writing formats were the same.
c) Suitability of content organisation and elaboration questioned

All the students perceived that they felt uncertain about the suitability of content structure. For example, EH commented:

‘The difficult part for me was the opening paragraph. I didn’t know how to write. I haven’t written any enquiries in a formal way.’

Likewise, KX said:

‘I was not very sure of how to organise the introduction part because there were a few details like who I am in the company, purpose, and the company’s background. I just copied everything from the questions after introduction without knowing how to arrange my enquiries according to priority. Lastly, I just put in a closing statement hoping that the company will look into the enquiries as what I remember about letter writing.’

Similarly, CM also commented:

‘The content part is difficult. I didn’t know how to add details, and I didn’t know how many people should be taking part in the trip as the question did not mention about it.’

Discussion

The context for the task was unfamiliar to all of the students. Therefore, it affected the development of content. This supports research done by Bhatia (2007). He argued that when producing a professionally written communication, the culture and context of the profession in which an individual is engaged needs to be taken into consideration. It would seem that when assigning tasks to students, the teacher should take time to build contexts for students to help them carry out the tasks. This is even more important for students learning ESL who may be unfamiliar with the cultural setting of the assignment.

d) Lack of professional language used

When students compared the tasks done prior to and after the writing lessons, they commented on their lack of exposure to the choice of language expressions and vocabulary for professional communication. For instance, WK remarked:

‘I was not comfortable writing in English especially in a formal setting. When I compare between the first and second letter, I think the second piece is a better write up due to the choice of expressions used. I think that the communication has become more effective.’

Similarly, MZ elaborated:

‘My language in the first letter was not formal enough. It sounds like I am conversing in the letter when it is supposed to be formal and proper. I think as long as I can tell what the question asks for then I should give it a try.’

Discussion

Students perceived that their choice of language was not as professional as they had expected. They thought the most appropriate language had been used to achieve the goal of writing the letter. However, the resulting letter did not seem to reflect this perception. This is supported by Wu (2011) who found that while making linguistic choices, language users continuously weigh the different principles and strategies to ensure the chosen ones can help to achieve the communicative goals.

RQ2. What are the improvements to students’ professional communication skills?

a) Better able to write using given format

Twelve out of eighteen students perceived that the task became easier for them after the expected format was given to them. They were confident as they knew what was expected in the letter. For example, KX commented:
‘I am more certain and confident this time because the general format was taught, and I know the expectations of this writing task.’

Similarly, CM commented:

‘Basic structure of the letter was taught. It is easier to write this time. I knew what teacher was expecting me to write and how to structure the whole letter.’

Discussion

After the students were taught the format of professional writing, they were more confident when completing the same task a second time. This would imply students had already learned what was intended for them, and they were using their prior knowledge to complete the task. This finding supports research done by Hernandez (2003) who noted that students’ prior learning experience is a useful tool to help them become comfortable with completing writing tasks.

b) More confident with structuring of content and using language expressions

Twelve students out of eighteen perceived that they were confident after the letter writing lessons where samples of professional writing were discussed. They perceived that they had a better understanding of how to write professional communications. For instance, WX commented:

‘Content structure is clearly categorised in different parts of this task now. I am more confident in writing the letter again but the structure of the content is changed to make my communication clearer as well as the formal language that I used.’

Likewise, JH said:

‘I know what are the different parts of the content and the requirement of each part. It is clearer to me now, and I am more certain with how to complete the same task again by including appropriate information and proper sentences for this kind of writing task.’

Discussion

Students perceived they had improved in structuring their content when writing letters after the lessons. They also perceived that the different writing conventions taught enabled them. This corroborates with research done by Lee, Penfield, and Buxton (2011) that content area instruction could provide meaningful context for language development and skills.

c) Improved overall organisation

Sixteen out of eighteen students perceived their letters had improved in overall organisation and had resulted in more effective communication. For example, SS commented:

‘I have improved in my writing from subject heading to the closing statement of the letter. The language expressions especially have helped me in making my delivery of content clearer, and I learned how to put forward enquiries even with other situations given. I believe this will be useful when I work in the future.’

Likewise, YS said:

‘I am able to elaborate more this time with relevant details using clearer expressions. It makes a difference in my writing. I know how to structure my enquiries so that the purpose of writing this letter is fulfilled. I have more confidence to write when I work.’

Discussion

The overall organisation refers to the flow of content and effectiveness of communication in the letter. Students perceived that they had improved in these areas and were more confident about writing such letters. This corroborates with the study carried out by Alanko-turunen (2005), who found that by introducing professional
writing, students become more aware of the need to learn professional communication which they would encounter in real-life working situation.

Limitations of the study

A convenient sample was selected for the study; thus, the results generated cannot be generalized to all teaching and learning contexts. However, these results will be useful in examining the difficulties many students may face when producing professionally written communication without much working experience in their respective fields. Further studies into strategies of bridging the gap between academic knowledge and professional context knowledge need to be carried out to find further strategies to prepare ESL students to write using the appropriate conventions practised in various working contexts. The researchers do not claim objectivity when selecting the writing task which was chosen after much consideration by the researchers.

Conclusion

This study suggests that the effects of interdiscursivity have largely influenced students’ linguistic adaptation, use of format and content structure, and elaboration when completing their letter writing task. The writing conventions had initially hindered them from writing effectively in terms of using appropriate language expressions to structure the content of the letter. Added to this, they were influenced by their prior knowledge of letter writing and chose to write with what they were taught prior to the writing lessons. With the introduction of problem based learning, the students perceived that it helped them learn the skills necessary for writing. They began to recognise the suitability of format, language used, content, and the overall organisation, all of which are important for writing professional communication.

In this paper we have defined interdiscursivity as the interpretation and mixing of different statements in a text and the social and cultural meaning that can arise from it. Our study has shown that students extensively used their skills of interpretation of a text and associated this within the context of their sociocultural background. Students almost instinctively incorporated interdiscursivity as a tool to help enhance their written professional communication. Further study needs to be carried out to develop strategies that could help students be more aware of the occurrence of interdiscursivity when learning writing skills for professional communication using a wider range of writing genres.

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References


The Teacher-Coaches’ Perspective on The Validity And Acceptability Of Commercial Laboratory Testing And Analysis Of High School Science Investigatory Projects

Richard R. Jugar
Science and Mathematics Education Department University of San Carlos, Philippines
rrjugar@gmail.com

Abstract

This paper attempts to determine teacher-coaches’ perspective concerning the validity and acceptability of commercial laboratory testing among high school students in conducting their investigatory projects (IP’s). Considering the conduct of IP as an inquiry-based learning of the scientific method, validity in this context refers to the alignment of the practice to the goals and aims of having the students do an IP where as acceptability refers to the personal judgment of the teacher whether the said practice is appropriate or not. The study initiates with a review and discussion of the nature of IP as practiced in the Philippine setting vis-à-vis with relevant literature on inquiry-based teaching and learning. The empirical aspect of the study is the participation of 47 practicing high school science teachers who are, or have had an experience in teaching and coaching the conduct of an IP in a survey as well as group and individual interviews. Results indicate that while majority of the respondents consider the practice as invalid, majority of the same pool of respondents also consider the practice as acceptable. Lack of laboratory instruments and materials were pointed out as the inherent determining factor in the consideration of the validity and the acceptability of the practice. The implication to assessment specifically on judging the merit of the students’ IP output is also discussed.

Keywords: Investigatory Project, Inquiry-Based, Scientific Method, Experiment, Science Investigation

Introduction

The Philippine High School Science Curriculum

The Philippines is currently changing the landscape of its main educational highway, as evidenced by the current transition from K+10 to K+12. The current secondary education science curriculum in the Philippines as prescribed by the Department of Education (DepEd) is disciplined-based. First year high school students take general science, which is a combination of astronomy, earth science, biology, chemistry, and physics. Second, third and fourth year high school students take biology, chemistry and physics respectively. Each science subject is a combination of both lecture and laboratory encounter that are usually integrative in nature, that is, the same teacher is handling of both laboratory and lecture classes. In order to increase interest in science of high school students, almost all secondary schools require their students to conduct an investigatory project. Investigatory projects or IP’s are science investigation projects where students undergo the research process utilizing the scientific method. The design is generally experimental and students are free to choose the specific discipline with which they are to conduct their research. The length of conducting an IP generally varies in different schools. Some schools follow a spiral format where students submit their IP’s by parts (4 years), other schools opt to require the students to conduct the IP in the last year of high school (4th year) while still others require one IP per year level. The conduct of an investigatory project is not a requirement of the DepEd. However, DepEd conducts a yearly event in the form of a science and technology fair showcasing the best IP’s of all secondary schools in the country. Such event is actually a contest to select the best investigatory project from the district level (basic aggregate of schools), the regional level (several districts), and in the national level (DepEd Memorandum 73, 2009).
Inquiry-based teaching and learning is one of the approaches in science education. The National Research Council (2000) proposed five standards that capture the characteristic of an inquiry-based approach to teaching and learning with respect to the learner: (a) engaged by scientifically oriented questions, (b) give priority to evidence, which allows them to develop and evaluate explanations that address scientifically oriented questions (c) formulate explanations from evidence to address scientifically oriented questions, (d) evaluate their explanations in light of alternate explanations, particularly those reflecting scientific understanding, and (e) communicate and justify their proposed explanations. These standards when used to examine the nature of the conduct of an investigatory project among high school students generally condone the nature of IP as an inquiry-based activity. Further, the fact that IP’s are one of the basis for the assignment of grade, and is considered as one of the major requirements in science makes IP’s as a form of assessment. In effect, an investigatory project in this context would be an inquiry-based assessment. In line with this reasoning, the dynamics that govern the conduct of the IP should be interpreted in light of the assumptions and underlying principle of the inquiry-based teaching and learning.

Using inquiry-based learning as the framework for the conduct of an IP, the objectives of such an activity can be coincided with that of inquiry-based teaching as offered by Schwab (1962) where “instruction by inquiry promotes student understanding of the nature of science”. By extension, the conduct of an IP has the primary goal of allowing the students to undergo the process of conducting an investigation using the scientific method thereby gaining a considerable understanding of the nature of obtaining solutions to problems, or answers to questions in a systematic and scientific way.

Simply having this broad idea concerning the objectives of the conduct of an investigatory project poses a dilemma. Specifically, concerning the skills that the students ought to develop during the course of doing the IP, in this case, the testing and analysis of their data. The absence of a non-standardized target or competencies for the students who are required to conduct investigatory projects have repercussion on the method and the extent to which the conduct of an IP is taught and evaluated. Consequently, such repercussions will affect the grade that the student gets. It is in this light that a national document explicitly specifying the goals and limitations for the conduct of IP’s among high school students is necessary. As of the moment, the guideline that is being followed is in the form of excerpts taken from the International Science and Engineering Fair International Rules and Guidelines (2013), which do not exactly suit the context with which the IP is conducted in the Philippines.

Methodology

The study was conducted among practicing high school science teachers who are, or have had an experience teaching IP, as the respondents. A total of 47 science teachers served as the respondents of the study. Of the 47 respondents, 9 were male and 38 were female; 37 have a bachelor’s degree, 7 have acquired graduate units while 3 are graduate degrees holders (MA). Out of the 37 with a bachelor’s degree, 28 had a bachelor’s degree in secondary education (BSEd) while the other 9 have a bachelor’s degree in the pure sciences. Out of the 9 Non-BSEd degree holders, 7 were with a bachelor’s degree in the Sciences: 1 in Physics, 2 in Chemistry and 4 in Biology; and the other 2 in Chemical Engineering. The teaching experience of the respondents ranged from 1 to 18 years.

The method used in gathering relevant data was mainly data mining and survey using a 2-item, researcher-made differential semantic scales concerning the validity and acceptability of the practice. Prior to answering the survey, the respondents were personally briefed of the operational definition of the terms validity and acceptability as used in the context of the study. The respondents were also interviewed personally, through email exchanges and electronic chats. The responses during the interview were thematically analyzed and the prevalent themes of their responses were presented and discussed.

Results and Discussion

Validity and Acceptability of Practice

The following tables (1 and 2) present the result of the teacher-coaches’ response using the 5-level differential semantic scaled questions with 1 as very invalid or very unacceptable and 5 as very valid or very acceptable:
Table 1. Teacher-Coaches’ Response on the Validity of Practice

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of Respondents</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24</td>
<td>51%</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>19%</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>13%</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>11%</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>6%</td>
</tr>
</tbody>
</table>

Table 2. Teacher-Coaches’ Response on the Acceptability of Practice

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of Respondents</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8</td>
<td>17%</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>15%</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>28%</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>23%</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>17%</td>
</tr>
</tbody>
</table>

As can be observed, majority of the teacher respondents consider the practice as invalid with a combined percentage of 70%. Of this 70%, 51% indicated the practice to be very invalid. This implies that with the teacher respondents’ perspective, the conduct of an investigatory project necessitates the students to undergo each and every process associated with doing an IP, from problem conceptualization until the final presentation of the results. Moreover, this choice also provides a picture, albeit not very clear, on the perceived goals of conducting an IP despite the lack of a national framework. Upon probing through interviews, most of the respondents who consider the practice as invalid believe that testing and analysis is an integral part of conducting an investigatory project by the students themselves, and that the inability of the student to conduct such practices on their own is equivalent to non-acquisition of the skill to do so. On the other end, some of the respondents consider the practice as valid. There were two dominant justifications as to why they consider the practice as valid: (a) the utilization of commercial laboratories is part of the students’ prerogative and ‘method’ in acquiring the desired results, and (b) the value of ‘practicality’ considering the inability of the school to provide the necessary equipment for the conduct of such testing and analysis.

With regard to the acceptability of practice, a shift can be observed in the teacher respondents’ choice. While majority considers the practice as invalid, the number of respondents who consider the practice as very unacceptable dramatically decreased. Further, the number of respondents who were relatively ambivalent also increased as indicated by the number of respondents who answered 3, from 13% on the issue of validity to 28% when it comes to acceptability. Considering the figures in the table, it was observed that a number of respondents who indicated the practice as very invalid and invalid shifted to ambivalence while those who were ambivalent as regards to validity shifted to acceptable and very acceptable. As expected, those respondents who considered the practice as very unacceptable came from the same set of respondents who considered the practice as very invalid. During the interview, the shift in the teacher respondents’ response was largely due to their personal claims on the objective of the activity, which is the conduct of an investigative research following the scientific method, and the inherent financial and instrumental demand of the practice.

**Implications to assessment**

Since the investigatory project is used as an inquiry-based assessment, it follows that the conduct of the IP is supposed to follow sound practices of both formative and summative aspects of assessments concerning inquiry-based teaching and learning. Further, since assessment is largely based on the objective of the activity, it is likewise important that the teacher be guided as to what scientific skills are being targeted with respect to the different steps involved in conducting an IP. The lack of a national framework that would have enabled the teacher-coaches to have a uniform understanding of the objectives of conducting an investigatory project is seen to be one of the major factors why a number of ambiguities such as these exist. To cite an example, consider the exchange in the following interview segment between the researcher and one of the teacher-respondents:
In this exchange, it is apparent that the teacher has an idea as to what is feasible to be considered as a science investigatory project with respect to the students’ capacity to do a scientific investigation, albeit in a very personal way. If a framework exists defining the limits or extent of research problems that the students can use in the conduct of their IP, such framework will essentially have to contain conditions stipulating whether to only allow problems that are doable within the boundary of the school’s environment and resources or beyond. Having this framework will give a resolution on the validity and subsequent acceptability of the practice being focused in this study.

Another implication to assessment is the formative aspect of the conduct of the IP. While the teacher might be aware of the summative aspect of the IP as a graded output, the formative assessment aspect has to be stressed to be of equal importance. Bell and Cowie (2001) categorized formative assessment into two types: formal and informal. Formal formative assessments are those assessments that are planned and whose main purpose is to obtain learning information from the whole class whereas informal formative assessments are unplanned and are used in obtaining information about student learning whenever possible. Example of informal formative assessment is the dynamics of simple classroom interaction or ‘hallway conversation’ between teacher-coach and the student. As of this writing, there was no literature available concerning the role of formative assessment in the conduct of IP especially in the Philippine context. The role of formative assessment has been proven to be essential especially in improving student performance. Moreover, formative assessment as used in inquiry-based teaching and learning usually focus on the epistemic rather than on the conceptual feature of the scientific inquiry (Ruiz-Primo and Furtak, 2006). This means that the integration of formative assessment will actually reinforce student learning of the conduct of an IP as a ‘process’ rather than as ‘output’. This reinforcement is consistent with the claim of Bodzin and Beerer (2003) concerning the claim of inquiry-based teaching and learning advocates that the practice does “provide learners with the opportunity to learn scientific practices by actually engaging in them.”

Finally, the result of this study indicates the need to come up with a sound rubric that is anchored in an encompassing framework that depicts the interplay of the concepts and processes in conducting an IP. As of the moment, the lack of a defining framework concerning the use of IP as a teaching-leanring process and as an assessment scheme significantly affects the way IP’s are assessed. The consequent evaluation of the IP output is therefore relatively invalid since the resulting rating will be subject to inter-rater threats to reliability.

**Conclusion**

The conduct of investigatory projects in the Philippines is more of an inquiry-based assessment scheme. It was noted that the practice of students having their IP data tested and/or analyzed through commercial laboratories is deemed by majority of the teacher-coaches respondents as invalid but acceptable. Based on individual and group interviews, the most prevalent factor that determines the acceptability of the practice is the lack of...
materials and laboratory instruments available for student use. Also, the lack of a national framework specifying the scientific skills and target competencies of students in the conduct of the IP is also a factor that contributes to the inconsistencies in both practice and evaluation of the conduct of IP’s. Moreover, the conduct of IP as an inquiry-based assessment scheme in Philippine classroom necessitates the utilization of both formative and summative aspects of assessments. Finally, the inclusion of the identified gaps in formulating a rubric to better assess and evaluate the quality of IP outputs is likewise proposed.

References


Measuring Intangible Cultural Heritage: 
Case Study of Knowledge and Practices of Malacca 
Cultural Communities

Aisyah Abu Bakar 
Kulliyyah of Architecture and Environmental Design 
International Islamic University Malaysia, Malaysia 
Ihya.ab@gmail.com

Mariana Mohamed Osman, Syahriah Bachok 
Kulliyyah of Architecture and Environmental Design 
International Islamic University Malaysia, Malaysia 
mariana@iium.edu.my

Syahriah Bachok 
Kulliyyah of Architecture and Environmental Design 
International Islamic University Malaysia, Malaysia 
syahriah@iium.edu.my

Abstract

This paper reviews methods and implementations of measuring Intangible Cultural Heritage (ICH) in one of the most historical sites in Malaysia, Malacca. Malacca has been declared a World Heritage City on July 7th, 2008 by United Nations Educational, Scientific and Cultural Organization (UNESCO). One of the three selection criterion emphasizes the great variety of multicultural activities of the cultured communities in Malacca stated by ICH. Survey Questionnaires have been recently conducted to measure the level of community involvement in cultural activities. Cultural activities refer to cultural expressions adopted in five domains of ICH, namely Oral traditions and expressions, Performing arts; Social practices, Rituals and Festive events; Knowledge and Practices and Traditional craftsmanship. 640 survey forms have been gathered from four locations of residence which are claimed to be the residential areas of cultural communities in Malacca - homes to the Traditional Malays, Portuguese, Chetty, Baba and Nyonya, Indians and Chinese. These locations of residence are Morten Village, Portuguese Village, Heren and Jonker Streets and Gajah Berang Village. This paper provides an analysis of the involvement of the cultural communities in cultural activities of one of the domains of ICH that is Knowledge and Practices concerning Nature and Universe.

Keywords: Community, Culture, Intangible Cultural Heritage, Knowledge and Practices.

Introduction

Intangible Cultural Heritage (ICH) as initially defined by UNESCO is “…all forms of traditional and popular folk culture such collective works originating in a given community based on tradition…” (Kirshenblatt-Gimblett, 2004, p. 54). These products of heritage are transmitted either orally or by gesture (Smith, 2006). Therefore, the sustainability of ICH greatly depends on human embodiment of the ICH (Smith and Akagawa, 2009; Smith, 2006; Raj Isar, 2004; UNESCO, 2003). For the purpose of manifestation, UNESCO ICHC 2003 has proposed five broad domains of ICH, which are (i) Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage; (ii) Performing arts; (iii) Social practices, rituals and festive events; (iv) Knowledge and practices concerning nature and the universe; and (v) Traditional craftsmanship. This paper discusses the significance and statistical analysis on cultural activities adopted in the fourth domain of ICH, that is Knowledge and practices concerning nature and the universe.
Significance of Knowledge and Practices concerning Nature and Universe

Three important elements in safeguarding ICH are societies, norms and values and these three elements must be in equilateral triangle correlation in configuring a strong bond to uphold cultural heritage (Smith, 2006). Accordingly, there are two vital actions when it comes to safeguarding ICH. The first one is the actual ICH representation and its societal condition to ensure its vitality. These enactments must be well-defined and adapted in life by their owners or community. The second is the intergenerational transmission system. As the ICH products can only exist with human representations, the knowledge, skills and understandings must be passed down to the next generation (UNESCO, 2003; Raj Isar, 2004; Smith, 2006, Smeets, 2003).

When the community interacts with the natural environment, a certain appreciation and awareness develop between the community and the surroundings. The awareness and appreciation gradually grows into skills, practices and knowledge which concerns with nature and universe. The ways of reflecting upon the universe are conveyed through language, oral traditions, and sense of attachment, memories, spirituality and worldview (UNESCO, 2003).

The purposes of safeguarding Knowledge and Practices includes (i) to strengthen sensitivity the community towards their cultural identity, (ii) to increase attentiveness of the community towards the universe and fundamental values in life, and (iii) to strongly gives impact of values and beliefs towards the community and trigger various social practices and cultural traditions.

From the context of cultural activities adopted in the domain of Knowledge and Practices concerning Nature and Universe as inscribed by UNESCO, six Knowledge and Practices in relevance to the case study are selected for statistical assessment. These Knowledge and Practices are (i) Indigenous Knowledge, (ii) Cosmologies, (iii) Traditional Healing, (iv) Traditional Culinary Arts, (v) Rituals and Beliefs, and (vi) Courtesies.

Methodology

A quantitative research methodology has been implemented to analyze the level of community involvement in Knowledge and Practices of their ICH. The methodology of fieldwork is survey questionnaires while the analysis is conducted by using the Statistical Package of Social Science (SPSS). Survey Questionnaire is a form with a set of questions, an important research tool which functions as device to measure a determined specifications (Oppenheium, 1992). The strategies used in this study are generally characterized under two extents: (i) amount of structure and (ii) degree of directedness. A pilot study which has been conducted beforehand to ensure that the questions in the questionnaire forms (i) are comprehensible to the community of interest, (ii) have interpreted consistent understanding between researcher and respondents, and (iii) obtain data reliability and validity.

The Survey Questionnaires which has been conducted in Malacca, inquire four cultural communities to address their level of involvement in cultural activities. These four communities are selected geographically according to their locations of residence. These locations are Morten Village, Portuguese Village, Heren and Jonker Streets and Gajah Berang Village. The survey samples are distributed equally at every location of the cultural communities. That is, 170 surveys are executed at every location which have totaled up into 680 surveys. After data cleaning, only 640 survey forms are entered into SPSS. This means 160 complete and reliable survey samples are selected from every location.

Statistical Analysis and Discussions

The analysis is performed by using Multivariate Analysis of Variance or also known as Manova. The ICH domain which is to be assessed is Knowledge and Practices concerning Nature and Universe. The objective of this assessment is to determine the difference of communal scenario of Knowledge and Practices for every cultural community with regard to the community’s Locations of Residence. There are seven understandings which are to be addressed before the analysis.

1. The analysis principally aims to distinguish if Locations of Residence has significant effect on Knowledge and Practices Scenario Scores. For that reason the most suitable SPSS Test is the Manova.
2. The independent variable is the nominal variable of Locations of Residence, which consists of four subjects, namely (i) Morten Village, (ii) Portuguese Village, (iii) Heren and Jonker Streets and (iv) Gajah Berang Village.

3. The dependent variables are six bounded continuous or scale variables of Knowledge and Practices, namely (i) Indigenous Knowledge, (ii) Cosmologies, (iii) Traditional Healing, (iv) Traditional Culinary Arts, (v) Rituals and Beliefs, and (vi) Courtesies. The score of each variable range from 1 to 24 where each of the score represent a scenario. In combination, the six dependent variables are known as ‘Knowledge and Practices Scenario Scores’.

<table>
<thead>
<tr>
<th>Score</th>
<th>Scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>90 – 100% / Most of them are Extinct or No Longer Can Be Recalled</td>
</tr>
<tr>
<td>2</td>
<td>60 – 90% / Many of them are Extinct or No Longer Can Be Recalled</td>
</tr>
<tr>
<td>3</td>
<td>30 – 60% / Some of them are Extinct or No Longer Can Be Recalled</td>
</tr>
<tr>
<td>4</td>
<td>1 – 30% / A few of them are Extinct or No Longer Can Be Recalled</td>
</tr>
<tr>
<td>5</td>
<td>90 – 100% / Most of them are No Longer Practised but Can Be Recalled</td>
</tr>
<tr>
<td>6</td>
<td>60 – 90% / Many of them are No Longer Practised but Can Be Recalled</td>
</tr>
<tr>
<td>7</td>
<td>30 – 60% / Some of them are No Longer Practised but Can Be Recalled</td>
</tr>
<tr>
<td>8</td>
<td>1 – 30% / A few of them are No Longer Practised but Can Be Recalled</td>
</tr>
<tr>
<td>9</td>
<td>1 – 30% / A few of them are Practised and Believed by Very Few Elderly</td>
</tr>
<tr>
<td>10</td>
<td>30 – 60% / Some of them are Practised and Believed by Very Few Elderly</td>
</tr>
<tr>
<td>11</td>
<td>60 – 90% / Many of them are Practised and Believed by Very Few Elderly</td>
</tr>
<tr>
<td>12</td>
<td>90 – 100% / Most of them are Practised and Believed by Very Few Elderly</td>
</tr>
<tr>
<td>13</td>
<td>1 – 30% / A few of them are Fairly Practised but Not Young Generation</td>
</tr>
<tr>
<td>14</td>
<td>30 – 60% / Some of them are Fairly Practised but Not Young Generation</td>
</tr>
<tr>
<td>15</td>
<td>60 – 90% / Many of them are Fairly Practised but Not Young Generation</td>
</tr>
<tr>
<td>16</td>
<td>90 – 100% / Most of them are Fairly Practised but Not Young Generation</td>
</tr>
<tr>
<td>17</td>
<td>1 – 30% / A few of them are Practised and Transmitted</td>
</tr>
<tr>
<td>18</td>
<td>30 – 60% / Some of them are Practised and Transmitted</td>
</tr>
<tr>
<td>19</td>
<td>60 – 90% / Many of them are Practised and Transmitted</td>
</tr>
<tr>
<td>20</td>
<td>90 – 100% / Most of them are Practised and Transmitted</td>
</tr>
<tr>
<td>21</td>
<td>1 – 30% / A few of them are Popular and Receive Tourism Interest</td>
</tr>
<tr>
<td>22</td>
<td>30 – 60% / Some of them are Popular and Receive Tourism Interest</td>
</tr>
<tr>
<td>23</td>
<td>60 – 90% / Many of them are Popular and Receive Tourism Interest</td>
</tr>
<tr>
<td>24</td>
<td>90 – 100% / Most of them are Popular and Receive Tourism Interest</td>
</tr>
</tbody>
</table>

Table 1: Scenario Scores Indicator

4. 160 samples have been gathered from each Locations of Residence. The survey inquires the respondents to select the best overall scenario based on the Scenario Scores Indicator for each six Knowledge and Practices.

5. Preliminary analyses have been conducted to ensure no violation of the Manova assumptions: Sample Size, Normality, Outliers, Linearity, Multicollinearity and Singularity, Homogeneity of Variance-Covariance Matrix and Homogeneity of Error Variances. However, the assumptions of Homogeneity of Variance-Covariance Matrix and Homogeneity of Error Variances have been violated. Therefore, alternative Multivariate test is used instead of Wilk’s Lambda which is Pillai’s Trace; and more cautious and critical alpha level is used to determine the univariate effect (Tabachnick and Fidell, 1983). The critical alpha level for the multivariate test is 0.0083 = 0.05 / 6 within subject variables, that is at 99.17% confidence level.

6. The Manova inferentially identifies:
   i. if Locations of Residence has significant multivariate effect on a linear combination of the six variables of Knowledge and Practices Scenario Scores,
   ii. if there are interactions between Locations of Residence with Knowledge and Practices Scenario Scores, and
   iii. if Locations of Residence has a significant univariate effect on each variable of the Knowledge and Practices Scenario Scores.

The Manova statistically analyzed the within-subject mean differences of Knowledge and Practices Scenario Scores between-subjects of Locations of Residence variable. Therefore, the null and alternative hypotheses for the statistical test are deduced and addressed in Table 2:
Table 2: Hypothesis

H₀: There is no significant differences of Mean Scores within 6 Knowledge and Practices between 4 Locations of Residence (There is no multivariate effect)

H₁: There are statistically significant differences of Mean Scores within 6 Knowledge and Practices between 4 Locations of Residence (There is a significant multivariate effect)

Table 3 is a summary output of Manova for Scenario Scores of Knowledge and Practices.

<table>
<thead>
<tr>
<th>Knowledge and Practices</th>
<th>Morten Village</th>
<th>Portuguese Village</th>
<th>Heren &amp; Jonker St.</th>
<th>Gajah Berang Village</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous Knowledge</td>
<td>10.62</td>
<td>10.91</td>
<td>13.37</td>
<td>15.33</td>
<td>12.55</td>
</tr>
<tr>
<td>Cosmologies</td>
<td>8.45</td>
<td>8.24</td>
<td>16.09</td>
<td>12.15</td>
<td>11.23</td>
</tr>
<tr>
<td>Traditional Healing</td>
<td>9.41</td>
<td>6.81</td>
<td>18.25</td>
<td>13.76</td>
<td>12.06</td>
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<tr>
<td>Traditional Culinary Arts</td>
<td>19.95</td>
<td>19.1</td>
<td>17.44</td>
<td>19.73</td>
<td>19.05</td>
</tr>
<tr>
<td>Rituals &amp; Beliefs</td>
<td>14.32</td>
<td>16.14</td>
<td>15.08</td>
<td>18.41</td>
<td>15.99</td>
</tr>
<tr>
<td>Courtesies</td>
<td>15.56</td>
<td>19.21</td>
<td>12.32</td>
<td>17.43</td>
<td>16.13</td>
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</tbody>
</table>

Multivariate Tests

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial ε²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Pillai's Trace</td>
<td>.827</td>
<td>40.133</td>
<td>18.000</td>
<td>1899.000</td>
<td>.000</td>
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</table>

Tests of Between-Subjects Effects

<table>
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<tr>
<th>Source</th>
<th>Dependent Variable</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
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<tbody>
<tr>
<td>Location</td>
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<td>789.468</td>
<td>31.767</td>
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<td>.130</td>
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<tr>
<td></td>
<td>Cosmologies</td>
<td>3</td>
<td>2193.342</td>
<td>76.320</td>
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<td>.265</td>
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<td>Healing</td>
<td>3</td>
<td>4045.804</td>
<td>186.451</td>
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<td>.468</td>
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<tr>
<td></td>
<td>Culinary</td>
<td>3</td>
<td>205.231</td>
<td>7.601</td>
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<tr>
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<td>3</td>
<td>507.256</td>
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<tr>
<td></td>
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<td>26.999</td>
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<tr>
<td></td>
<td>Rituals</td>
<td>636</td>
<td>23.885</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Courtesies</td>
<td>636</td>
<td>21.056</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Interpretation of Manova Outputs on Differences of Mean Scenario Scores of Six Knowledge and Practices between Locations of Residence

A Manova has been conducted to evaluate the differences of mean Scenario Scores of within-subjects of six Knowledge and Practices between four Locations of Residence. The Manova yields four important outputs. The following are the interpretations of the four output:

1) Descriptive Statistics

The output of Descriptive Statistics displays the mean of Scenario Scores for six Knowledge and Practices between four Locations of Residence. According to the figures displayed, mean Scenario Scores differ across every six Knowledge and Practices. The mean of Scenario Scores also differ across the four Locations of Residence. This suggests that every Knowledge and Practices of different community has different scenario score.

2) Multivariate Tests (Multivariate Effect)

The Multivariate Tests indicate that There is a statistically significant difference between Locations of Residence on Knowledge and Practices Scenario Scores, F (18, 1889) = 40.133, P < 0.0083, Pillai’s Trace = 0.827, Partial ε² = 0.276. That is, the combined Scenario Scores of six Knowledge and Practices differs
significantly in relation to Locations of Residence. This means Locations of Residence has significant multivariate effect on a linear combination of the six variables of Knowledge and Practices Scenario Scores. That is, there are interactions between Locations of Residence with Knowledge and Practices Scenario Scores. The Pillai's Trace is very strong at 0.276. This means that 27.6% of within-subjects variance of Knowledge and Practices Scenario Scores is attributed to Locations of Residence.

3) Tests of Between-Subjects Effects (Univariate Effect)

Tests of Between-Subjects Effects indicate that Scenario Scores of each Knowledge and Practices is significant between different locations; all p values < 0.0083. This means that there are statistically significant differences of mean Scenario Scores of each six Knowledge and Practices between the four Locations of Residence. This means that Locations of Residence has a significant univariate effect on each variable of the Knowledge and Practices Scenario Scores.

Overall, with regards to the significant interaction between four Locations of Residence and Knowledge and Practices Scenario Scores, the result of the Manova suggests that (i) the combined Scenario Scores of six Knowledge and Practices differ significantly between the four cultural communities, and (ii) Scenario Scores of each Knowledge and Practice also differ significantly between the four cultural communities. This means that (i) different community has different combined scenario of Knowledge and Practices, and (ii) scenario of each Knowledge and Practice differ significantly in every cultural community.

Figure 2 illustrates and indicates the levels of practices of every Knowledge and Practice of every cultural community.

Figure 2 shows that the scenario scores of every Knowledge and Practice of different community differs significantly. This can be attributed to many issues. Among them are levels of practices by the community themselves and the extinction of the Knowledge and Practices. Traditional Culinary Arts are highly practised by all four cultural communities. The high practice of Traditional Culinary Arts can be attributed to popularity of the variety of culinary products of the cultural communities.

There are three Knowledge and Practices which are considered endangered as highlighted in Figure. They are Indigenous Knowledge, Cosmologies and Traditional Healing in Morten Village and Portuguese Village. The three Knowledge and Practices in both Locations obtain mean Scenario Scores between 6 and 11. This means that generally, the scenarios of Indigenous Knowledge, Cosmologies and Traditional Healing in Morten Village and Portuguese Village are either ‘No Longer Practised but Can Be Recalled’ or ‘Practised and Believed by Very Few Elderly’. The following points discuss the scenario of Indigenous Knowledge, Cosmologies and Traditional Healing in Morten Village and Portuguese Village.

i. Indigenous Knowledge obtains mean Scenario Scores of 10.62 in Morten Village and 10.91 in Portuguese Village. Scenario Scores Indicator (refer to Table 1) indicates score 11 means that 60% to 90% of
Indigenous Knowledge are practised and believed by very few elderly. This suggests that a majority of Indigenous Knowledge in Morten Village and Portuguese Village are still practised and believed but only by few elderly in the communities.

ii. Cosmologies obtain mean Scenario Scores of 8.45 in Morten Village and 8.24 in Portuguese Village. Scenario Scores Indicator (refer to Table 1) indicates score 8 means that 1% to 30% of Cosmologies in Morten Village and Portuguese Village are no longer practised but can be recalled. This suggests that the community in Morten Village and Portuguese Village realize that a few of their knowledge on Cosmologies is disappearing in practice or transmission. Additionally, Cosmologies are also disappearing in Gajah Berang Village with mean Scenario Score of 12.15; that is, 90% to 100% are practised and believed by very few elderly.

iii. Traditional Healings obtain mean Scenario Scores of 9.41 in Morten Village and 6.81 in Portuguese Village. Scenario Scores Indicator (refer to Table 1) indicates score 9 means that 1% to 30% of Traditional Healings in Morten Village are practised and believed by very few elderly, and score 7 means that 30% to 60% of Traditional Healings in Portuguese Village are no longer practised but can be recalled. This suggests that Traditional Healings in Morten Village can be safely retrieved from very few elderly in the village. However, Traditional Healings in Portuguese Village is already disappearing in practice.

Rituals and Beliefs as well as Courtesies obtain mean Scenario Scores between 14 and 19 in all four communities. This means that generally, the scenarios of Rituals and Beliefs and Courtesies in all four communities are either ‘Fairly Practised but Not Young Generation’ or ‘Practised and Transmitted’ (refer to Table 1). The following points discuss the scenario of Rituals and Beliefs and Courtesies in all four Locations of Residence.

i. Rituals and Beliefs obtain mean Scenario Scores of 14.32 in Morten Village, 16.14 in Portuguese Village, 15.08 in Heren and Jonker Streets, and 18.41 in Gajah Berang Village. Scenario Scores Indicator (refer to Table 1) indicates that, score 14 means that 30% to 60% of Rituals and Beliefs in Morten Village are fairly practised in the community but not young generation; score 16 means that 90% to 100% of Rituals and Beliefs in Portuguese Village are fairly practised in the community but not young generation; score 15 means that 60% to 90% of Rituals and Beliefs in Heren and Jonker Streets are fairly practised in the community but not young generation; and score 18 means that 30% to 60% of Rituals and Beliefs in Gajah Berang Village are practised and transmitted in the community. This suggests that Rituals and Beliefs in Gajah Berang Village are well-preserved by the community. However, Rituals and Beliefs are unlikely practised by young generation in Morten Village, Portuguese Village and Heren and Jonker Streets.

ii. Courtesies obtain mean Scenario Scores of 15.56 in Morten Village, 19.21 in Portuguese Village, 12.32 in Heren and Jonker Streets, and 17.43 in Gajah Berang Village. Scenario Scores Indicator (refer to Table 1) indicates that, score 16 means that 90% to 100% of Courtesies in Morten Village are fairly practised in the community but not young generation; score 19 means that 60% to 90% of Courtesies in Portuguese Village are practised and transmitted in the community; score 12 means that 90% to 100% of Courtesies in Heren and Jonker Streets are practised and believed by very few elderly; and score 17 means that 1% to 30% of Courtesies in Gajah Berang Village are practised and transmitted in the community. This suggests that Knowledge and Practices of Courtesies are well-preserved in Portuguese Village and Gajah Berang Village. However, Courtesies are unlikely practised by young generation in Morten Village and Heren and Jonker Streets.

Unlike the rest of Knowledge and Practices, Traditional Culinary Arts gain between 17 and 20 Scenario Scores in all four Locations of Residence. This suggests that Traditional Culinary Arts are practised and transmitted within the community members which include the young generation. Therefore, Knowledge and Practices of Traditional Culinary Arts is considered sustainably preserved by all four communities.

Generally, current practice level of Cosmologies is significantly low since some of the communities consider their Cosmologies are no longer transmitted by the community. Traditional Healing and Indigenous Knowledge are considered fairly low in practice as most of them are only practised by elderly in the community. Rituals and Beliefs as well as Courtesies are considered moderately practised as majority of them are still practised in the communities yet unlikely by the younger generation. Traditional Culinary Arts are highly practised since all communities consider that they are practised and transmitted in the community. The following points summarize the findings of the analysis.
Only Traditional Culinary Arts are considered well-preserved by the cultural communities and potentially strong for tourism exposure.

Although Rituals and Beliefs as well as Courtesies are still practiced by the cultural communities, the transmission of these knowledge and practices towards the young generation needs to be improved.

Indigenous Knowledge and Traditional Healing are considered endangered.

Cosmologies are facing serious extinction.

Therefore, attention needs to be given to Indigenous Knowledge, Traditional Healing and Cosmologies. Apart from improving the practices of three Knowledge and Practices within the community, they also need to be retrieved from reliable practitioners and tangibly restored in documents.

Conclusion and Future Recommendation

The surge of increasing homogenization of places causes the loss of distinctiveness and diversity which used to make lives interesting and profound. Diversity promotes economic health as it fosters opportunity while non-diversity offers little prospect for future expansion, either in the form of personal growth or economic development. Designing for diversity combines the aesthetic interest of urban design with social objectives of urban planning. Sustainability rests on the ability of people to be involved in the contribution to the well-being of the society. Community’s opinions and perspectives must be regarded as important information in decision-making processes. The involvement of the community in their cultural activities of the Intangible Cultural Heritage heightens integration of social, political and economic aspects of the place.

The future direction of this study is the statistical assessment of community involvement in the remaining four domains of Intangible Cultural Heritage. They are Oral Tradition, Performing Arts, and Traditional Craftsmanship. The involvement levels are analyzed based on preferences and regularity of customary cultural expressions and practices.

References


Raj Isar, Y. (2004, November). Tangible and intangible heritage: are they really Castor and Pollux?. Paper presentation presented at Conference held on the occasion of 20th Anniversary of the founding of the Indian National Trust for Art and Cultural Heritage (INTACH), New Delhi, India.


A Study of The Qualitative Aspect Of The One Minute Paper

Tommy Tang
QUT Business School, Australia
Email: tt.tang@qut.edu.au

Abstract

Student learning literature tells us that reflective learning promotes deep understanding. In the current higher education environment with expanding student population, our first year classes are getting larger. Their diverse academic backgrounds make it even more challenging for lecturer to interact with students and to facilitate active learning in class. The one minute paper has been found to be an effective teaching innovation to promote reflective learning and improve academic performance. It is argued that the effect is conditional on the effort of the student in the writing, which will reflect on the quality of paper. However, none of the studies on one minute paper reviewed has considered the qualitative aspect of one minute papers. This empirical study aims to investigate the quality of one minute papers in an introductory economics course, utilising the phenomenographic method of analysis. The framework developed can enrich future empirical research on one minute paper. The implications from this qualitative study for teaching will also be discussed.

Keywords: One minute paper, teaching innovation, writing to learn, reflective learning, learning outcome.

Introduction

The one minute paper (OMP) is commonly known and widely used for its ease and low cost. Some educators claimed that it was the single most consistently effective classroom innovation (Light, 2004). The following section will review empirical studies on OMP in business education.

Chizmar and Ostrosky (1998) used a pre/post test design to investigate the effect of OMP on learning in economics. Their treatment involves two related activities: one minute papers at the end of a lecture followed by discussion and clarification of common muddy points in the next lecture. They found the treatment enhanced economic knowledge as measured by TUCE (Test of Understanding of College Economics) by 6.6% controlling for pre-TUCE level. And the effect did not vary across ability groups. In their review of writing-to-learn literature (1998), Almer and her colleagues found that elaborative/reflective writing activities can improve performance on both objective and subjective materials. The writing activities they reviewed are all highly structured, while OMP is much less structured. Almer et al. (1998) conducted a detailed experimental investigation on OMP with 867 students in an introductory accounting course and found a positive impact on performance of students in essay quizzes, but not in MC tests. No explanation was discussed by Almer et al as to why OMP did not improve learning in objective assessments. This result (OMP enhancing learning when assessed using subjective material) was later supported in a smaller study involving 81 accountancy students by McElroy and Coman (2002). However, it is noted that in Chizmar and Ostrosky’s (1998) study, TUCE is an objective test, which shows that the OMP improves academic performance in objective material.

In a more recent empirical investigation of the effect of OMP on students’ performance at the individual level, Stowe (2010) controlled for demographic and other factors (such as attendance and cognitive abilities). Using final grades in Principles of Microeconomics as the dependent variable, OMP was found to increase students’ final results by 4 to 6%. Stowe did not discuss the types of assessments used to determine a student’s final grade in his economics course, but it can be assumed they consist of a mix of objective and essay type items.

Almer et al’s (1998) study also found that grading of OMP had an unexpected effect on students’ test performance. According to the authors it was expected that grading would make students take the task more seriously and hence think harder in their focusing and elaborating, which would enhance understanding. However, compared to non-graded students, the test results of students whose papers were graded were significantly lower. To explain this finding the authors proposed a “red pen effect” (students write to meet
teacher’s expectation) and this tended to corrupt the process of reflective thinking in writing. In Stowe’s 2010 study, in order to remove the confounding effects of grading or subsequent discussions, the instructors did not grade the papers, discuss or make any comment on the papers in subsequent classes. Stowe’s study confirms that writing the paper itself has a positive impact on learning. However, it is noted that grading and follow up discussion could affect learning in different ways. While grading may affect the actual writing task by influencing students’ expectation, follow up discussions and feedback clarify and correct misunderstanding as revealed from the papers after the task. Almer et al’s finding of an adverse of grading therefore cannot be used to infer about the effect of follow up discussions on learning.

The above review, while confirming a positive effect of OMP on learning, raised two related pedagogical questions: (1) What brought about the improvement of students’ performance – the reflective writing task or the subsequent discussion/clarification or both? (2) If completing a paper has an effect of learning, does the quality of writing matter?

If the student invested little or no effort in the elaborative/reflective writing task, or if they write very few papers during the semester, their learning should not be enhanced in a significant way. It is argued that the benefit of OMP would be conditional on the quality and quantity of the papers. However, in all the studies reviewed above, no mention was made regarding the qualitative aspects of papers. Also, Chizmar and Ostrosky did not report on the number of papers submitted for each lecture. Stead (2005) observed that due to lack of novelty and motivation, the number of students completing a paper dropped sharply after 2-3 lectures. If this is also the case in Chizmar and Ostrosky’s classes, then the positive effect reported could predominantly be due to the teacher’s discussion of common problems/misunderstanding in subsequent lectures.

The Study

The author first used OMP in 2005 in a statistics course with enrolment over 1000 in a semester, of which over 30% were overseas students. In a large lecture, students may have queries but generally are reluctant to ask, not wanting to disrupt the class, feared of asking silly questions, or due to the language barrier. The purpose of OMP was to give students the opportunity to write a question or comment on any aspects of the lecture and put them in a box on their way out after lecture. And since 2010, the OMP was used in an introductory economics class with slightly different questions. At the end of a two-hour-lecture they were asked to write:

- the most important thing they learnt,
- the muddiest point of the lecture, and/or
- a comment on any aspect of the lecture.

The study reported in this paper is based on selected papers my economics students had written in the two semesters in 2011. It aims to address the gap in OMP research in relation to the qualitative aspect of papers discussed in the previous section. The theoretical framework behind this study is discussed next.

Marton, Dall’Alba, and Beaty (1993) distinguish six conceptions of learning: (1) acquiring factual information, (2) memorising what has been learnt, (3) applying knowledge, (4) understanding, (5) seeing things from a new light, and (6) changing as a person. They represent increasing sophistication of the conception of learning, with a qualitative break between the first and the last three conceptions. In the first group, learning is perceived as a passive process of taking in of knowledge and its reproduction. In the second, the emphasis is on meaning making; the learner makes sense of information by connecting it to existing knowledge and own experience, and eventually changing their perception about aspects of the reality. Studies found a functional relationship between conception of learning, approach to learning and learning outcome (Svensson, 1989). Taking the first three conceptions as an example, if the student holds an external and absolutivist view of knowledge and a transmissive conception of learning, they will tend to approach learning by focusing on the factual details of the material, and their learning outcome will consist predominantly of discrete pieces of knowledge, lacking a hierarchical structure, with limited awareness of the central message or underlying principle of the material. Thus the learning will have little impact on their outlook.

Students come into a class with a range of social, cultural and academic backgrounds and possess different conceptions of learning and associated learning approaches. If there is a functional relationship between approach and outcome, we should observe important qualitative differences in their OMP. And these differences should be reflected also in students’ academic performance. Therefore, a rigorous investigation of the impacts of OMP on learning should take into account the quality of papers.
Based on the above discussed tradition of student experience of learning, the present study aims to develop a detailed mapping of the quality of one minute papers. The established framework can then be used to categorise the learning outcome as revealed in the paper. Such a framework provides a way for researchers to incorporate this important qualitative aspect of writing in their investigation of OMP.

**Methodology**

The raw data are the one minute papers submitted in two lectures of an introductory economics course offered in a capital city university in Australia in semesters 1 and 2, 2011. The content and structure, and teaching approach were the same across the two semesters. The first lecture focused on consumer behaviour using the indifference curve model, and the second introduced the isoquant and isocost technique to examine production in the long run. A revision of production and cost functions was included at the beginning of the second lecture. The phenomenographic technique was chosen as the method of data analysis. The papers were read multiple times until a pattern emerged. The outcome of this process is a finite number of exhaustive, non-overlapping categories of description. These categories are presented in the Result section.

**Result**

From the four lectures a total of 232 papers were collected. Completing a paper was not compulsory; roughly 60% of the students contributed a paper. From detailed analysis of the papers, four categories of learning outcomes emerged, representing qualitatively different ways students presented what they believed were the key ideas learnt. Although the paper describes learning outcome, in presenting each category I use an action verb to describe its approach. A small number of these statements were unclassifiable; they were mostly comments on non-academic aspects of the lecture. Questions students asked in the papers were not included in the analysis. The four categories of learning outcomes are discussed and illustrated with examples.

**Listing**

Based on either memory or their lecture notes, these students name the key concepts covered in lecture, with no or little explanation of their meanings. For example:

<table>
<thead>
<tr>
<th>Learnt:</th>
<th>Re-learnt short Run Costs</th>
<th>Learnt How a firm uses Isoquant and Isocosts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoquants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isocosts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law of DimR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Explaining**

In the second group of papers, the student selects and explains one or more discrete concepts in their own words or with the assistance of the lecture notes. Their explanation does not indicate any attempt to make reference to other concepts taught in this or other lectures. Within this category, a variation is discerned in terms of coverage and detail of explanation. Based on this variation, two sub-categories were identified: (a) Explaining Restrictive, and (b) Explaining Elaborative. Examples of each are presented below:

(a) Explaining Restrictive:

I learnt about MRS – which is basically the ability of a good to replace another

I learned that the budget line is mathematically a tangent line to the indifference curve.

(b) Explaining Elaborative:

Explain your understanding of the concept of DimR.

Re-learned short Run Costs

Learnt How a firm uses Isoquant and Isocosts
Integrating

In the third category, the papers convey a higher level of understanding than category 2 by making meaningful connections with other concepts. It is the presence of this integrative understanding rather than the length of the paper that distinguishes Category 3 from Category 2. Two examples are presented below:

In the first example, the student links the indifference curve to concepts covered in this (marginal rate of substitution) and a previous lecture (the law of diminishing marginal utility). The second student does not specifically mention any other concepts learnt but describes how he sees all material is related to an underlying principle. This paper also touches on the application of cost minimisation in business decision making. However, in this statement the connection with real world application is too vague for it to be classified as belonging to the next category.

Reflecting

Many educators see learning and conceptual change as synonymous. Accumulation of factual information will not be very meaningful if it does not have any impact on the way we see things. And as a result of acquiring the way of thinking in a discipline, the learner develops a different outlook of the reality. In the papers, we can observe this type of learning in a few students. These students not only focus on the key ideas, but reflect on their personal experience. In the first example below, the student tells of her preconception about technologically backward method of production and how the topic changes her preconception of efficiency. And in the second, the student sees “the theory popping up all over the place” and goes on to describe his work experience in a bar to illustrate the law of DMR (Diminishing Marginal Returns).

Table 1 summarises the outcome space – the four categories of papers emerged from the raw data.
**Sub-theme C: Methodologies & Strategies In Learning, Teaching & Assessment**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>SOLO Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listing</td>
<td>Name the concepts/topics without coherent explanation</td>
<td>Pre-structural</td>
</tr>
<tr>
<td>Explaining</td>
<td>Explain one or more concept without links with other concepts taught</td>
<td>Uni-structural or multi-structural</td>
</tr>
<tr>
<td>Integrating</td>
<td>Make meaningful connections between concepts</td>
<td>Relational</td>
</tr>
<tr>
<td>Reflecting</td>
<td>The student ask: What does learning in this lecture affect or mean to me personally?</td>
<td>Extended abstract</td>
</tr>
</tbody>
</table>

Table 1  The four categories of papers

Biggs and Collis (1982) develop a taxonomy to describe the quality of learning outcome in terms of its structural complexity. A neat correspondence between the four categories and the SOLO (Structure Of Learning Outcome) taxonomy is highlighted in column 3.

In the next step, we went back to the raw data and used the categories to classify the statements. The number of statements in each category was tallied. The frequency counts and their percentages are presented in Table 2. It shows that the majority of the statements fall into the categories of Listing and Explaining, ranging from 61% to 76%. At the end of the lecture, very few students integrated concepts/principles and related them to real world observations. The implications of the result are discussed in the next section.

<table>
<thead>
<tr>
<th>Category</th>
<th>Lecture 1*</th>
<th>Lecture 2</th>
<th>Lecture 1</th>
<th>Lecture 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listing</td>
<td>8 (24%)</td>
<td>13 (22%)</td>
<td>30 (47%)</td>
<td>21 (39%)</td>
</tr>
<tr>
<td>Explaining (Restrictive)</td>
<td>9 (26%)</td>
<td>20 (34%)</td>
<td>15 (23%)</td>
<td>7 (13%)</td>
</tr>
<tr>
<td>Explaining (Elaborative)</td>
<td>7 (21%)</td>
<td>3 (5%)</td>
<td>4 (6%)</td>
<td>5 (9%)</td>
</tr>
<tr>
<td>Integrating</td>
<td>8 (24%)</td>
<td>17 (29%)</td>
<td>9 (14%)</td>
<td>15 (28%)</td>
</tr>
<tr>
<td>Reflecting</td>
<td>2 (6%)</td>
<td>6 (10%)</td>
<td>7 (10%)</td>
<td>6 (11%)</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>59</td>
<td>65</td>
<td>54</td>
</tr>
<tr>
<td>Unclassified</td>
<td>3</td>
<td>7</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>

* Note: Data for lecture 1 in semester 1 2011 are from one class only and the rest from two classes.

Table 2  The number of statement in each category

**Discussion**

The Nature of Writing

A *two-hour-lecture* covers a lot of material. Some students look for the hierarchical relationship that connect the material as a whole, and relate concepts/principles to, and make better sense of, their personal experience. Some, on the other hand, approach the material as disconnected pieces of information to be remembered and recalled for later (mainly exam) purpose. The analysis of students’ papers revealed qualitative differences that reflect these different approaches to, and the associated outcomes of, learning. We ask a question relevant to OMP research: Is the quality of paper wholly determined by the learning before the writing task? Or is the quality of paper the product of the writing process?

Writing-to-learn literature argues that during writing (structured or unstructured) by focusing, and clarifying what you have learnt, and reflecting on the meanings of material to you, you come to a better understanding of the materials and their structure (Almer et al., 1998). Hence, writing one minute paper is a creative process. The finding from the studies reviewed in this paper - that writing one minute papers improves academic performance - provides empirical evidence that at least to some students, OMP is not a passive pouring out process. Put in a different way, to these students completing a paper can enhance understanding. The quality of paper therefore represents a learning product at a higher level of understanding than before writing.
It was observed in the two lectures investigated the majority of students managed only to list isolated concepts (Categories 1 and 2). But could some of these students have achieved a level of understanding from the lecture that is higher than revealed in their papers? We speculate that it is possible, and is a result of two reasons.

First, students might have learnt more than they had written down, but they just did not have the motivation to think hard. Focusing, elaborating and reflecting require effort and they just wanted to leave earlier. If this is the case, the one minute paper will have no significant learning enhancing effect to these students, who make little or no effort in completing a paper. And we should not see any improvement of their test performance. Given this possible interaction of the writing task and the quality of writing, in OMP research at the individual level, we recommend the quality of paper be included as an explanatory variable in the model.

If writing a paper is hard work, can we motivate our students by marking their papers? This proposition is partially refuted in Almer et al’s experimental study. The refutation is partial because marking can enhance continuation of writing papers but not necessarily the quality of writing. As discussed before, Almer et al found grading of papers actually led to lower test performance, contrary to their expectation. However, it should be pointed out here that Almer et al’s observed lower test performance could be due to the inappropriate marking criteria that direct students away from engaging the writing as a truly reflective process, rather than the grading itself.

There is a second, more important reason why students who produce less sophisticated papers might actually know more than their papers revealed. Many students simply did not know how to write OMP. In Stead’s (2005) survey, some of his students told him that “it is difficult to say ‘what the most important thing learnt’ actually was” (p. 125). This is similar to collaborative learning - a graduate capability highly valued by employers (AACSB, 2012, p. 58). We cannot expect our students to know how to work effectively in a team just by giving them a group assignment to complete. Similarly, we should not expect all students to know how to focus and reflect in their writing just by telling them to write us a paper.

The observed high attrition rates of completing a paper in Stead’s economics courses (2005) could be due to both of these reasons. To motivate students to complete a paper, a number of strategies were suggested: Ask different types of questions with a variety of focuses/purposes for different topics (Cuseo, undated); have students write a paper at the beginning or during the break of a lecture (Bressoud, undated); use OMP as a pop quiz (Cuseo op cit); not to have OMP in every class (Stead, 2005).

The quality of paper is also related to the student’s learning style and language background. Students with non-English speaking background tend not to be able to think, organise and express their ideas as quickly and effectively as their English speaking counterpart. In relation to learning styles, it is argued that due to their cultural and educational experience, Asian students tend to be serialist rather than holist learners (Kolb, 1984). Serialists prefer to learn in a step by step manner; they would master concepts sequentially before they can form a bigger picture of the topic. So immediately after a lecture and before they got an opportunity to further revise and practise the learnt material, serialist learners will be less able and willing to develop and reveal a higher level of understanding in, and may also less likely benefit from, the writing task. In this study, students were not required to write their names and student numbers on the papers and this proposition cannot be further investigated.

The Nature of Teaching

The OMP can enhance teaching. For example, using the papers, Chizmar and Ostrosky’s (1998) identified common difficulties and misunderstanding that they discussed at the beginning of the next lecture to better prepare students for the lecture. Besides alerting teachers of learning gaps, the qualitative aspect of papers can also help us to reflect on our teaching objective: What do we want our students to learn? Is what we teach and how we teach consistent with what we claim we want our students to learn at the end of a lecture/course?

The four categories of learning outcomes obtained from our analysis provide a framework for gauging teaching effectiveness in terms of how well we focus students on the key concepts, and facilitate students to relate concepts to their personal experience. Do we focus excessively on technicality when we claim our learning objective is knowledge transfer in novel situations? Do we tend to teach by moving from the abstract to the abstract, and as a result creating barriers to concept assimilation? If conceptual change is the learning objective, do we consider students’ background knowledge and life experience in designing a curriculum?
To illustrate how OMP helps modify teaching strategy to better focus students on principle rather than details, I use my isoquant/isocost lecture as an example. In semester 2 2011, over three quarters of the papers in the lecture on indifference curve consists only of disconnected points with varying degrees of explanation. On reflection, I realised that I had put too much emphasis on the technical details of the material. So in the next lecture, I explicitly highlighted and focused my teaching more on the key principles (diminishing returns and equi-marginal principle of optimisation) in the lecture and made reference to similar concepts and principles encountered in previous modules. At the end of lecture I still had a lot of low level papers (Categories 1 and 2), but the proportion dropped significantly. The OMP has the potential of promoting reflective teaching.

Students’ motivation of completing a paper can also be related to the constructivist alignment of learning objective and assessment (Biggs, 1996). As discussed, OMP is not a straight forward writing task. It takes much effort. If students perceive (rightly or wrongly) that the assessment tasks in the course are all about memorisation and recitation of knowledge, they may not appreciate the usefulness of the one minute paper as a reflective learning tool, and may even resent it (as reported in McElroy and Coman 2002). The misalignment of learning objective and assessment could therefore be another explanation of the high attrition of completing papers as discussed in Stead (2005).

Conclusion

This study investigated the qualitative aspect of the OMP. The framework developed provides a language for us to talk about, and develop a better knowledge of, the learning product. This knowledge not only opens a window into the mind of our students, but also facilitates reflective teaching.

The qualitative analysis of the papers reveals a wide range of learning outcomes at the end of a lecture – from simple reproduction and explanation of terms to higher level abstraction (making connections and relating to personal experience). This reflects the diverse backgrounds of our students in terms of language ability, aptitude, conception of learning and learning style. While it is unrealistic to expect all our students to achieve the same high level of understanding and abstraction immediately after a lecture, there should be teaching and learning devices in the course to support concept acquisition and conceptual change to cater for our students with growing diverse academic needs.

The finding of this study also contributes to OMP research. If the validity of the framework can be further confirmed, particularly using data from other disciplines, the categories derived from a qualitative approach can be of immense value to quantitative investigation of the impacts of OMP on learning.

References

Implementing A Cognitive Apprenticeship To Create A Situated Learning Environment For Advanced 3D Animation Students: Implications For Student Learning And Interaction

Thong Li Ping
Design Department
Centre of Communication and Design,
RMIT International University Vietnam
liping.thong@rmit.edu.vn

Abstract

In this study, the six components of the cognitive apprenticeship model: modelling, coaching, scaffolding, articulation, reflection and exploration were applied in an Advanced 3D Animation course for the length of one semester at a transnational university in Vietnam. Students’ perceptions of a situated learning environment were investigated and examined from a qualitative perspective. Students perceived that the six components of cognitive apprenticeship were helpful in overcoming the initial learning curve in the course and applying their newly acquired skill in different situations or problems. Students also agreed that working within a production team environment created an authentic learning experience for them. Peer-to-peer support from the community of practice was also found to be immensely beneficial in collaborative knowledge sharing and problem solving among students.

Keywords: Cognitive apprenticeship, situated learning, 3D animation, student perception

Introduction

Industries have expectations that university graduates possess well-rounded theoretical and practical knowledge to be successful in their jobs. In a typical classroom environment, formal instruction is often transferred with much theoretical generality and abstract representations. In some instances, knowledge transferred from formal class delivery or textbooks remains bound to the scope of solving-problems on a surface level, whilst little emphasis is placed in addressing thought processes and strategies employed by experts in applying knowledge to solve complex real-world problems and situations (Collins, Brown, & Holum, 1991). As a result, when faced with complex problems or situations that fall beyond recognized “textbook” problems or patterns, students lack the ability to apply acquired conceptual and problem-solving knowledge to solve the problem. This presents a gap between formal instruction in classrooms and the real-life application of acquired knowledge into a real working environment. An approach in addressing this gap is to ensure that the learning in classroom settings has close authenticity with a real working environment, where learning activities and application of knowledge are engaged within context, thus leading to a meaningful learning experience. This study illustrates how the principles of cognitive apprenticeship was applied into an Advanced 3D Animation class over the duration of one semester in a transnational university to create an authentic situated learning experience for undergraduate university students.

Situated Learning in Classrooms: Bridging the Gap between Formal and Informal Learning

While formal education in schools or higher education institutions can be viewed as a unique social setting or a specialised practice with its own conventions, it does not adequately prepare students for subsequent problem solving later in life or in the workplace (Hennesy, 1993). In most cases, educational institutions place much emphasis in teaching applicable skills and theories that are general and widely applicable, while situation-specific learning is mostly omitted. This way of teaching practice results in students struggling to apply acquired knowledge from schools into real-world situations (Chee, 1995). Research indicates that by providing meaningful situated cognition to students, transfer of knowledge to new situations can be drastically improved.
Àpar defined situated learning as learning that is “...embedded within and inseparable from participating in a system of activity deeply determined by a particular physical and cultural setting”. The connection to meaningful practice situations from situated cognition results with a powerful learning experience in contrast with de-contextualized knowledge and abstract representations (Stalmeijer, Dolmans, Wolfhagen, & Scherpbier, 2009). In classroom settings, most problems are already pre-defined for students and provided with requisite data. Instead of solving in-class exercises or assignment topics that are artificially constructed by teachers, informal learning outside of school is often self-initiated and encountered problems are authentic and relevant to the learner, thus leading to a learning experience that is much more meaningful (Hennesy, 1993).

The situated learning perspective on learning emphasizes that the process of acquiring knowledge is not restricted to an individual but is instead shared by means of engagement within social setting or a community of practice. In contrast, the educational system appears to foster an individualistic learning approach, where individuals are assessed by their ability to achieve learning goals by themselves without external support (Resnick, 1987)(Hennesy, 1993). In instances where group work is carried out, students still work as individuals (Galton, Simon, & Croll, 1980). This is not reflective of a typical workplace environment, particularly in the field of 3D animation (the focus of this study), where individuals are often required to work within a production team environment. The studies of Lave & Wenger (1991) introduced the notion of learning through participation within a community of practice, based on principles of traditional apprenticeship.

**Transitioning from Traditional Apprenticeship to Cognitive Apprenticeship in Classrooms**

In the traditional apprenticeship model, an apprentice learns a skill by observing the expert of the craft. The apprentice will then attempt the skill under the guidance and close supervision from the expert. Over time, guidance from the expert will be gradually reduced as the apprentice acquires the skill and is self-sufficient enough to execute complex and diverse tasks (Hennesy, 1993). Lave and Wenger (1991) identified that traditional apprenticeship emphasizes specific procedures in completing task-based activities. Unlike classroom activities or assessments, the tasks undertaken by apprentices are actual real-world tasks – thus, the procedures learnt and applied in accomplishing these tasks were meaningful and relevant to the learners. In traditional apprenticeship, the working relationship between the master and the apprentice are often associated with skills based trade such as tailoring or farming. Collins et al. (1989) introduced the cognitive apprenticeship model, which is applicable in teaching modern subjects within classroom settings. Cognitive apprenticeship begins with formal instructions offered by an expert or model, followed by model-guided attempts by the practitioner (learner), who will undertake progressively complex tasks as they progress in their learning (Farmer, Buckmaster, & LeGrand, 1992). Cognitive apprenticeship exemplifies and practice conceptual and factual knowledge within situated context (Collins, Hawkins, & Carver, 1991) while creating an ideal social interaction opportunity for learning (Jarvela, 1995).

Collins et al. (Collins, Brown, & Holm, 1991) outlined six teaching techniques within the cognitive apprenticeship model: modelling, coaching, scaffolding, articulation, reflection and exploration. The modelling phase occurs when the instructor performs demonstration while students actively observe. Crucial to the success of this teaching technique is not only the instructor’s ability to demonstrate a particular skill, but also offering descriptions and explanations of the thought processes as the demonstration was performed. By making the expert’s cognitive thought processes visible, the depth of learning deepens - as students learn how to perform a skill, they understand the reasoning behind the processes or why a skill was performed in a particular manner. Upon observation, students will proceed with attempting to perform the same task or skill, under the close supervision and guidance from the instructor. This is the coaching phase. Most often, this involves group collaboration among a small number of students, which offers the opportunity of sharing knowledge and ideas to successfully complete the task (Woolley & Jarvis, 2006). The instructor plays an important role in students’ learning by close observation and offering concrete feedback or correction on students’ performance as they attempt to perform the task.

The scaffolding phase is where the instructor gradually reduces ongoing support or guidance as students’ competence level of a skill increase over time. The amount of support from the instructor varies, based on student’s individual knowledge and skill level. The eventual withdrawal of direct support as students improve is known as “fading”. Coaching is crucial in affirming that students are capable of independently transferring newly acquired skills and knowledge into different situations in practice (Woolley & Jarvis, 2006). Articulation
involves instructors questioning students and also stimulating students to ask questions (Stalmeyjer, Dolmans, Wolfhagen, & Scherpbier, Apar 2009). Students are encouraged to explore and explicitly make their thought processes visible while performing tasks. This allows students to draw comparison on their problem solving abilities with their peers or instructor (Woolley & Jarvis, 2006), thus fine-tuning their techniques as learning progresses. The reflection phase involves students critically analysing their overall performance after the learning process. Instructors will play an important role in stimulating students to consider their strengths and weaknesses. This is followed by the final exploration phase of the cognitive apprenticeship model, where students are encouraged to consider how they can apply and adapt their newly acquired knowledge into new situations (Woolley & Jarvis, 2006). The objective of this is to encourage students to consider and pursue future learning goals to further refine their new knowledge and skill.

This study will examine the implications of student interaction and learning in a situated learning environment. In this study, six teaching methods of the cognitive apprenticeship model were applied in the teaching of an Advanced 3D animation class over the length of one semester. Students’ perceptions of a situated learning environment were then investigated and examined from a qualitative perspective.

Research Methodology

Setting

The setting of this study is the Advanced 3D Animation undergraduate curriculum for a transnational university located in Vietnam. This is an elective course that can be undertaken by Design or Information Technology undergraduate students who have successfully completed a pre-requisite course, Imaging and Animation. As both courses (Imaging and Animation; Advanced 3D Animation) are distinctly different in terms of teaching methods, students were able to draw comparisons of their learning experience between both courses.

Advanced 3D Animation builds upon students’ existing 3D knowledge and develops students’ understanding on principles and techniques of animation. The objective of this course is to foster situated learning in the classroom by simulating an authentic 3D studio working environment and experience. There were 4 individual exercises and 1 major group project. Much emphasis was placed on the major project, which is a short 3D animation, featuring animated 3D characters with a simple storyline. The entire class collaborated as one production team and each student was assigned roles and responsibilities within the team to produce the final animation. In working on this project, the class experienced the entire workflow of creating an animation short as a production team within the span of 12 weeks. The instructor assumed the role of production director to ensure the production is on schedule and monitored the work-in-progress to ensure the overall work quality is at acceptable standard. In addition, the instructor also played a crucial role as the master/expert in 3D to provide guidance to students in the modelling, coaching and scaffolding phases (further details will be described in the results section).

Participants

A total number of 7 students participated in this pilot study. Feedback from students was collected by individual interviews at the end of the semester to explore their perception and thoughts about the use of cognitive apprenticeship as a teaching method in this course using a semi-structured questionnaire based on the six components of the cognitive apprenticeship model. Interview sessions lasted between 30 to 45 minutes for each student and all responses were transcribed verbatim. During the interviews, the interviewer presented scenarios and summaries where the six principles of cognitive apprenticeship were applied during the semester and encouraged students to provide feedback, discuss problems and offer suggestions for further improvement in the learning experience. In the following section, the approaches taken to adopt the cognitive apprenticeship principles into the class will be described in detail. Interview results of student feedback and opinion for each of the six principles will also be presented.

Results

Principle 1 - Modelling

The first three weeks of the semester placed strong emphasis on teaching students advanced character animation skills (which will be an essential skill when students begin working on the major project in their course). As the demonstration was conducted in class, the instructor explained not only the steps of executing the task, but also
Apar thought processes by providing clear descriptions of reasoning and purpose of each step as the task was performed. This aspect of explicitly making the expert’s cognitive thought processes visible to the students can elucidate complex tasks and allows students to observe and enact similar tasks much more effectively (Stalmeijer, Dolmans, Wolfhagen, & Scherpbier, 2009). Upon completing the observation, students will attempt the same exercises under the close supervision of the instructor. When interviewed, 5 students agreed that the 3 weeks of character animation classes based upon the modelling teaching principle has provided them with good proficiency in this area and prepared them sufficiently for the major project.

One student noted: “…The amount of time spent on classes was just fine, the lessons covered were good enough to be applied into my assignments and exercises. What I learned from my teacher gave me a good foundation on character animation so I could improve myself further. It is not necessary to try to cover too much of everything because after learning something new in class I seek resources from tutorial websites or Youtube and I spend time at home practicing to improve myself. Sometimes I look for advanced tutorials that were not covered in class.” Two students suggested that in addition to demonstrations in class, the instructor should create video tutorials as supplementary learning materials. Both students agreed that the lessons covered in class were useful, but lamented that they occasionally struggled with the lessons as demonstrations were at times lengthy and thus it was hard to reenact all the steps when they attempt the task later.

**Principle 2 – Coaching**

Coaching for students was provided through class observations and feedback. Milestones were set every week and the instructor inspected all major project scenes and animations in class to provide immediate feedback and assistance on situated problems that students encounter. At the start of the major project, students were made to realize that all work-in-progress need to be approved by the instructor before the team could progress into the next phase of the project. This held all students accountable for the performance of the team, as poor effort, late submissions or non-attendance of any team member is likely to affect the production schedule. In some instances, presented works that were not up to par were rejected and students were asked to redo the work entirely until it is approved. This resulted in a delay in production schedule and added a sense of authenticity on expectations in real working environments – the completed work had to be flawless and any mistakes or errors on a team member’s part will affect the production schedule. To ensure easy accessibility to the instructor outside of class hours, the team set up a project management website, where students could engage in discussions, upload files or seek feedback from the instructor on the latest work-in-progress. This asynchronous learning method served as a useful learning platform for cognitive apprenticeship, where the instructor closely monitored students’ thought processes based on the online discussions and offered immediate feedback outside of class hours.

All students agreed that ongoing feedback received in class was adequate and allowed them to improve their 3D skills in general. One student noted: “…The feedback I received in class was adequate. I liked how the teacher observed my works in class and outside of class so I know my mistakes and then find ways to fix it. The Project Management website was useful because it’s always updated and I can keep up with the team progress and post my problems to my friends and teacher”.

**Principle 3 - Scaffolding**

Students were closely supervised and provided with guidance during the first 3 weeks of the semester and the start of the major project. As time progressed and students were self-sufficient enough to work with progressively complex tasks, instructor guidance was gradually withdrawn. Although the scaffolding phase involved the instructor gradually fading guidance to students, constant feedback was still required to provide assistance to students. In instances where students sought help, the instructor provided feedback and redirected students to specific resources that provided solutions to the problem. The instructor occasionally checked in on students to receive updates on overall individual and team progress. Instructor support for each student varies, based on each student’s individual skill level. Overall, students find that they were self-reliant and was able to work independently even with reduced guidance from the instructor. A student stated, “At times I struggled with problems, but I get feedback from my teacher or find solutions from tutorials on the Internet or books in the library. Working in a team helps also, as other classmates helped me a lot when I was struggling with texturing my poodle character.”

Apar Another student noted, “…I had a lot of difficulty with skinning and scaling my 3D character model because I did some of the steps in the wrong sequence. After the teacher told me that it would take a longer time to fix the problem than make a new work, I’ve re-done the entire character skinning. It took me 1 full day to do
it all over again. The next time I do character skinning, I will remember not to make the same mistake again.”

While feedback from the instructor was gradually reduced and students turned to other resources such as books and websites, peer-to-peer support was essential. On the project management portal, students actively shared ideas, thoughts and problems as they worked on their tasks. This provided a platform for students to pool their resources and skills together as a team and allowed the class to engage in active collaborative problem solving. Most often, problems encountered by students were successfully resolved with help from their peers. In the event that the problem could not be resolved, the instructor stepped in and offered further assistance to ensure no delay in the production schedule.

**Principle 4 – Articulation**

Articulation in the classroom involved the process the teacher asking students questions to expose existing gaps in their knowledge or stimulate students to ask questions during their learning process. Students noted that more articulation could be applied to stimulate learning in the Advanced 3d Animation class as they felt the instructor did not apply the teaching method adequately throughout the semester, as more effort was placed on either guiding, assisting or redirecting them to an external source or reference for solutions.

**Principle 5 – Reflection**

As part of the major project requirement, students were required to submit a report to reflect on their experience working as a production team throughout the semester. They were also required to submit a peer-to-peer feedback to provide input about their classmates’ overall performance and contribution to the team. Students agreed that the situated learning experience of working in teams, along with the instructor’s ongoing supervision and support, allowed them to gain a clearer perspective on expectations in the industry and prepare them better for the experience. One student commented: “This experience of working in production team is a new experience for me. I liked that we were in a small group because if there were more members in the team it will probably be more difficult to organize things together and work effectively. I will be starting internship next semester and this is really useful. I usually don’t like working in group assignments but I actually enjoyed it this semester and I learned a lot of new techniques from friends. It really applies, makes us work together and everything depends and makes me realize that all members depend on each other within the team for the project to be successful.”

Students favoured the process of learning within a community of practice as working within a production team in class adds a layer of authenticity in the tasks and offered a different perspective and experience as students engaged in the project. The initial modelling phase, followed by coaching and scaffolding, ensured that students do not depend on textbook knowledge, but were self-reliant enough to seek resources and apply their knowledge in different situations and problems. Thus, students perceive that they are well prepared as they transition from university to a real workplace environment. According to one student: “I enjoyed working in a team structure like this. I can apply this experience in the real world where I work and communicate with colleagues. There might be some arguments along the way among our team members this semester but in the real world that is probably what one would expect.” Another student noted: “I felt a little uncomfortable at first because I didn’t know some of the students in class. When I had group assignments in previous semesters I usually stick with my friends as my team members because I know them. I feel the group could be smaller, maybe 3 – 4 students per group, because sometimes it is very difficult to arrange for meetings when everyone has a different schedule. This experience of working in team was useful; I learned a lot of new techniques in compositing and modelling from my team mates, who helped me a lot when I struggled.”

In addition to instructor support, peer-to-peer support played an essential role as the cognitive apprenticeship model was applied. All students agreed that the collaboration with classmates allowed for constant sharing of knowledge and ideas, often enabling them to gain new knowledge or improve their skills over time. This particularly applied to students who often struggled to keep up with lessons. These students were initially provided with low skill tasks and often received support and assistance from their peers. Over time, the weaker students were able to improve and begin engaging in more complex tasks themselves with good competence.

**Âpar Principle 6 - Exploration**

In effort of encouraging students to be resourceful and self-sufficient in seeking new knowledge at improving skills, students were often directed to resources such as books, websites and videos as supplementary learning materials on areas that were not covered in class. Students agreed that the links and list of resources available on Blackboard was useful but not extensive enough. According to another student, “…The lessons covered in class
was good enough, lecturers can’t cover everything in one semester anyway. Students should seek resources themselves outside of class to improve.” One student noted that he finds it frustrating at times when the resources could not provide him with satisfying answers or solutions. He feels that it will be helpful if the instructor provides direct feedback and demonstrate immediate solution so that he doesn’t spend excessive time seeking for answers.

**Discussion and Conclusions**

In this study, students’ views and opinions about the teaching methods of cognitive apprenticeship were elicited to explore the effectiveness of cognitive apprenticeship in creating a situated learning environment for Advanced 3D Animation students. Based on results from interviews, students agreed that overall, the six teaching components of the cognitive apprenticeship model were sufficiently applied throughout the semester. The modelling, coaching and scaffolding phase were particularly useful in guiding them as they progress through the initial learning curve early in the semester. Students also agreed that working in a production team environment allows them to share knowledge and acquire new skills, as active peer-to-peer support created an authentic collaborative group experience. Within a community of practice, students are able to compare problem-solving abilities with not only the expert, but also with their peers. This results with an interaction that is less teacher-centered, but more of a collaborative problem solving activity (De Brujin, 1995).

While students strongly recognized the applicability of modelling, coaching, scaffolding, reflection as teaching methods to increase learning effectiveness, they reported a lack of articulation from the instructor as not many questions were posed to students to gain insight on knowledge gaps to further stimulate their learning. The exploration principle was also inadequately applied into their learning experience, as resources provided were not exhaustive enough to motivate students in pursuing their learning goals further. Students also reported a lack of time to practice to be truly proficient in animation before beginning the projects, as the major project begins 2 weeks after the character animation training is completed during the “modelling” phase. In future studies, the teaching technique of the instructor should be examined to ensure all cognitive apprenticeship principles are adequately applied as teaching methods. It will also be useful to identify alternative teaching methods, which could improve articulation and exploration in the classroom. The timing of assignments needs to be re-examined to ensure there is sufficient buffer time between the modelling phase and actual start date of the project. The extra time will allow students to practice and refine their skills further and subsequently be well prepared and self-sufficient when the project begins.

From the instructor’s point of view, adopting all teaching principles of cognitive apprenticeship is a time consuming task, as close supervision and immediate feedback for all students is required, especially during the modelling, coaching and scaffolding phase. The overall team performance and individual participation needs to be constantly monitored as well to ensure equal distribution of workload and consistent quality of work. This effort extends to outside class hours as well. With large class sizes, managing the production team while closely monitoring the learning progress for all students may be a challenging undertaking.

Several research limitations were identified when this study was conducted, which need to be addressed. The main limitation is the small sample size due to unequal balance of student groupings in the course for the semester. As each group had a different instructor, the decision was made to use only one group of students as sample to ensure the instructor’s teaching style is consistent across all students in the study. The smaller sample size was selected to allow the instructor to provide closer supervision and monitoring on all students’ progress for an effective cognitive apprenticeship learning experience. The qualitative results from this small sample size may not be reflective of the views and opinion of the larger population of students. Due to time limitation, this study adopted a basic qualitative approach in obtaining student views and feedback through interviews. In addition to qualitative feedback of students’ point of view on cognitive apprenticeship teaching methods, a quantitative approach could be considered

Àpar for future studies, where students’ proficiency in 3D can be tested the ability of completing a range of tasks with varying difficulties at the end of the semester.

For future studies, it will be interesting to conduct a followup study of students who have begun their internships and examine if cognitive apprenticeship and situated learning in classrooms provide any positive effects to students transfer of learning as they transition from classroom into a workplace environment.
References


ESL Students’ Perceptions of Group Discussions As A Tool For The Collaborative Learning Process When Learning Writing Skills

Daljeet Singh Sedhu
Languages, Nation Building and Unity Studies Department
Tunku Abdul Rahman University College, Perak Branch Campus
daljeetsingh@acd.tarc.edu.my

S.Chee Choy
Head of Branch
Tunku Abdul Rahman University College, Perak Branch Campus
choysc@mail.tarc.edu.my

Mun Yee Lee
Languages, Nation Building and Unity Studies Department
Tunku Abdul Rahman University College, Perak Branch Campus
leemy@acd.tarc.edu.my

Abstract
This paper examines the use of group discussion as a collaborative learning tool among English-as-a-Second-language (ESL) learners when learning writing skills. Studies on the topic of collaborative learning have shown that it enhances students’ learning experiences and knowledge. Collaborative learning in the form of group discussion has allowed students to produce creative and critical thinking. This learning further develops interpersonal skills and relationships among students. Twenty-four college students divided into six groups will be the respondents in this study. The data will be collected by using voice recorded transcriptions of the students’ discussions. In order to gain further insights into these students’ perceptions on collaborative learning, they will also be interviewed to determine how these students produce the content of their enquiry letters. The transcriptions will then be analysed using the interpretative approach in order to produce common, emerging ideas that may be categorised and discussed under various themes.

Keywords: Group discussion, Collaborative learning, Students’ perceptions

Introduction
There has been research evidence to show that using group work could effectively enhance the learning experience of students in the classroom (Barcelona & Rockey, 2010; Nayan et al, 2010). Group work has been looked upon favourably by educators, as it can enhance creativity and critical thinking, build stronger interpersonal skills, and enhance relationships with the faculty. However, students may not share the same views as educators. It has been found that students may not be able to manage adequately the amount of time and work needed to effectively carry out group work (Barcelona & Rockey, 2010). As such, in order for such collaborative learning to be an effective and positive experience for students, it is necessary for teachers to better prepare their students when using this method. Nayan, et al, (2010) noted that it is important when using this form of learning to take into consideration the type of task, the group organisation, and type of evaluation involved. Most teachers do not use collaborative learning or are not in favour of this form of learning because they find it difficult to control the class. Also, the content their course may limit its use. Added to this many of them were also concerned with completing their content material (Nayan et al, 2010).
Collaborative learning and writing skills

According to Haber (1994) collaborative learning became popular as a tool when it was found that students were inadequately prepared for college level courses. This form of learning was appropriate for students who responded well to classroom group work. It has a distinct advantage over the teacher centred approach in that it allows students to interact with the content from their context and to share their views with others in their group. The idea behind the use of collaborative learning when teaching writing skills is to provide students with real life experiences. Haber (1994) emphasises that in many professions writing is often carried out in teams, and the ability of individuals to participate in such activities would be crucial for their success in the workplace. As such, he suggests a five point-plan to carry out this activity: First, have students work in groups to write well organised paragraphs together; second, have them discuss their work in the group and generate a set of possible questions that could be asked about their work. Then, using the work they have generated, these students would lead a class discussion and write a summary of the discussion.

Using group work as a tool to enhance students’ learning will have its problems. High achievers and low achievers participate differently, with high achievers working harder than usual while the low achievers participate only minimally. As such, when assessing students in such tasks, half of the assessment will be for group work while the other half will be on individual effort. Added to this, the members of the group must be assessed on their oral participation in the group (Haber, 1994). In a study of collaborative learning in the classroom, Kuech (2004) found that this form of learning promotes critical thinking and reflection among students. This study also found that collaborative learning promotes intersubjectivity where students use their knowledge of other subjects in their conversations to help them learn better. The results of this study showed that student-student interaction helps in the understanding of concepts being learned.

Methodology

The sample used in this study was a convenience sample of twenty-four students in an English class. These students were divided into six groups of four. They were named Group A, Group B, Group C, Group D, Group E, and Group F. The task for this sample of students was to write a letter of enquiry. Data was collected using voice recorded transcriptions of the students’ discussions. In order to gain insights into students’ perceptions on collaborative learning, they were interviewed using the face to face interview method after they have been assigned to groups for the task assigned. This is to provide a way to analyse how these students interact while they are in a group to produce the content for the letter of inquiry McMillan(2012). The informed consent of the participants were obtained, and they were told that they could withdraw from the study at any time they wished.

The Current Study

In Malaysia students learn English as a second language (ESL) and many multinational companies will only employ students with the ability to speak and write English competently. In the current study we are interested in determining the efficacy of using collaborative learning in the form of group discussions to help ESL students learn the skill of letter writing. There is a dearth of research into the use of this form of learning in helping students learn letter writing skills. As a guide to this research, the research questions (RQ) underpinning this study are:

RQ1 What are students’ perceptions of the use of group discussions when learning to write professionally?

RQ2 Are these perceptions reflected in their course work performance?

In order to make the quotes more readable, the grammar of the students was corrected.

Results

**RQ1 What are students’ perceptions of the use of group discussions when learning to write professionally?**

The transcripts of the interviews and discussions were analysed and the following themes emerged from the analysis of the data. They are: increased comprehension, delegation of tasks, and better time management,
a. Increased comprehension

The students were better able to comprehend the task they were assigned because they could have discussions with other member in their groups. For instance, students in Group C explained:

“Before we proceed further in doing anything, my group members and I will analyse the question given to us. After that we will discuss among us how to answer the question given. We will read and understand the requirement of the question first and we made sure that each of our group members is able to get a clear picture of what the question requires”.

Discussion

It would seem from students’ comments that if they are given the opportunity to discuss a task before they have to complete it, it would helps them carry out the task better. They seem to have a better comprehension of what they have to do after they have discussed the task with members of their groups. This seems to support the findings of Barcelona & Rockey (2010), Nayan, et al, (2010) and Kuech (2004) that group discussion can enhance creativity and support critical thinking among students when they are given a task to complete.

b. Delegation of tasks

Students were assigned to write a letter of enquiry after being assigned to groups. Each member in the group had to pick a task from a list of tasks that ranged from formatting of the letter to editing each letter produced by the members of the group. All groups seemed to be able to efficiently and effectively assign tasks to each member. For instance, one member of the group A said:

“We divided up the job writing the letter of enquiry. Each one of us had a different duty, two persons will prepare the points for the content, another person will prepare format of the letter, and one will do the final write-up and editing. The job was divided by our group leader.”

Discussion:

Students were focused on completing the tasks assigned by their leader. Although each student may not be exposed to all aspects of writing the letter, as suggested by Haber (1994), they showed interest and were intent on completing their tasks. The teacher could then give an explanation of the overall process of writing the letter as a summary to the whole class.

c. Better time management

Students were able to complete all the tasks given to them in the stipulated time. Added to this, they were able to edit all the letters before they handed them in. For instance, students in Group C said:

“We managed to write-up the letter of enquiry in thirty minutes out of the forty minutes given to us by our lecturer. It is much faster to complete the work given to us using this way than doing it individually.”

Discussion:

The students were able to complete the tasks within the time given to them. They perceived that group discussion allowed them to complete the task faster than they would if they had to carry it out on their own. This does not support the findings of Barcelona & Rockey (2010) that students were not able to manage to complete a given task adequately in a given time period during group work. It would seem that with proper instructions and guidance from the teacher, students are very capable of completing assigned tasks. This supports the findings of Nayan et al (2010) that it is important for teachers to take into consideration the types of learning experiences presented to students and the materials used when teaching.

RQ2 Are these perceptions reflected in their course work performance?

The data was analysed, and common themes were allowed to emerge which were used to answer RQ2. The themes that emerged were: increased proficiency in English, ability to identify mistakes in work produced, and no memorisation
a. Increased proficiency in English

Students perceived that their English language proficiency, both written and spoken, improved after using collaborative learning. Students with a weaker command of English were able to learn from the better ones as they interacted during the group discussions. For instance, one student from Group F said:

“I feel my communication skills have improved after I started to interact with my group members who have better language proficiency. This is because my group members always made sure we communicate using English language.”

Some of them were able to overcome their fear of communicating in English. For instance, a student from Group E said:

“I used to feel shy when speaking or discussing with my course mates who have better English language proficiency than me, but now I find that by discussing with them I can improve my language skills.”

Discussion:

Students are able to improve their language proficiency when they interact with group members who have a better command of the English language. This interaction process even helped these students to overcome their shyness and build their confidence to communicate using English language. This finding does not support the finding of Harber (1994), which states that using group discussion a tool to enhance students’ learning will have its problem. Whereby, the high achievers and low achievers are unable to work together in a similar way to complete a task given. This finding further supports the findings of Barcelona &Rockey (2010) that group discussion builds stronger interpersonal skills among students.

b. Ability to identify mistakes in work produced

Students were able to learn from the mistakes they made from using the feedback given by other members of the team during the group discussions. Those with a better command of English were able to point out mistakes to the weaker ones. The weaker ones learned about correct grammar and sentence structure. For instance, a student from Group B said:

“When I was writing the letter of enquiry, my group members showed me my mistakes. They also showed me the mistakes in my sentence structure and the grammar errors when I wrote the memorandum. This became a guide for me when I wrote the letter of enquiry on my own.”

Another student in Group C said:

“I could understand my mistakes better in a sentence I had done previously before I went through this group discussion session. I realised the mistakes, and I will take note not to repeat them, as my group members explained to me the correct way of writing a sentence structure and taught me new words that I was unaware of before this.”

Discussion:

Students perceived they had improved their command of the language, as well as their writing skills, in the letter of enquiry. They were able to learn from their mistakes, and they were receptive of the feedback given by their peers. This finding supports research by Kuech (2004) where group discussions promote reflection among students on how they produce an output of a given task. During the discussion there was student-student interaction that helped them better comprehend the task they had to carry out. This also supports research by Kuech.

c. No use of rote memorisation

Students did not try to rote memorise a sample letter in an attempt to complete the task assigned. Rote memorisation is a common practice among Malaysian students learning ESL. The students wrote the letter of enquiry by analysing what was needed to answer the question that was given to them. For instance, a student in Group A said:
“After going through the group discussion session, I realised that I do not need to memorise previous contents when answering a question. Different questions require a different set of answers. I usually memorise the contents of earlier work and use it again on a new task”.

Discussion:

Students were not using rote memorisation to help them with the letter of enquiry. They seemed to use a more reflective and analytical approach to writing the letter by incorporating previous and current knowledge. The group discussions seemed to help them write the letters using their own words rather than using texts that they had memorised by rote. This finding supports research by Haber (2004) that when students go through the process of collaborative learning, they are able to incorporate what they learned previously with their current learning to form new knowledge.

Limitation of study

As with any research, this study is not without its limitations. The major limit is that the study only focused on one example of collaborative learning, writing a letter of enquiry. Further studies need to be carried out on other aspects of writing, such as essays and other formal written communication. It would then offer a broader comparison of the efficacy of using collaborative learning to teach writing.

Conclusion

The finding of this study would support the use of collaborative learning to teach writing skills. The results suggest that students were more reflective of the tasks they had to carry out, and they were able to learn from their peers in the group. It would also seem that students were thinking critically about the tasks they had to carry out and were more able to assess their own learning from the feedback given by their group members. Added to this, the comprehension levels of these students on the tasks they were assigned seemed to increase with discussion carried out while they in the groups. The results of this study showed that collaborative learning, if used effectively, could enhance students’ learning of ESL tasks and skills. The students in general were receptive to this form of learning and were able to manage their time well, which does not seem to support finding by Barcelona & Rockey (2010).

Students were more willing to participate and showed more enthusiasm about completing their work and assignments through the use of collaborative learning. They were also open to comment by their peers and perceived that they learned from them. Added to this, the students also perceived that they improved their command of English. This finding did not support research by Nayan, et al. (2010) who found that most teachers perceive collaborative learning as resulting in work was not being done in class and students being less willing to carry out tasks assigned. The results from this study seem to suggest that if collaborative learning was effectively carried out this would be an successful tool to help students learn ESL in an exploratory manner that would enhance their ability to assimilate English.

Acknowledgement

We would like to acknowledge the contributions of Frances A. Bryant to the successful completion of this paper.

References:

Abstract

Teachers’ observations suggest that task-based learning (TBL) enhances the four language skills at a seemingly faster rate and makes teaching and learning more interactive, enjoyable and effective. The objective of this paper is to suggest that TBL accelerates improvement because it usually requires greater involvement of the students in the learning process and students tend to feel a greater sense of ownership. Students are encouraged to take the lead in figuring out the best way to achieve the specific goals of the task. It is suggested that TBL makes it possible for students to take responsibility for a major part of the work, while at the same time, enabling the lecturer to focus on providing relevant explanation and feedback. This paper describes these aspects drawing on the experience of students in relation to their prior experience using task-supported language activities (TSLA). The subjects of this paper are students in the Australian Matriculation (AUSMAT) Programme who have taken English as an Additional Language or Dialect (EALD) core subject. Their reflective essays have provided relevant data as the basis of this research. Their reflective essays suggested that TBL produced noticeable improvement at a seemingly faster rate.

Keywords: task-based learning (TBL), task-supported language activities (TSLA), faster rate, ownership, task

Introduction

The mainstream views about language learning is rooted on the principle that language learning will progress successfully when there is a systematic attempt to teach language step by step as in approaches based on a structural syllabus where TSLA are given. TBL challenges these views based on the principle that learning will progress most successfully if teaching focuses on creating contexts in which the learner’s inherent language learning capacity is given the opportunity to be nurtured through linguistically rich interactions. TBL has been subjected to criticism on the basis of its implementation in different instructional settings. In particular, questions have been raised by critiques as to whether TBL is practical in non-English speaking countries, where teachers face practical problems such as limited English language proficiency and the washback effect from tests that they need to prepare the students for (Ellis, 2009), which has influenced the way language is taught. This paper does not attempt to address a number of criticisms arising from the theoretical critiques nor in distinguishing between TBL and TSLA to present that the former as desirable and the latter as undesirable because a case can be made for both. Rather, this paper intends to share the teachers’ experience and observation in employing the TBL approach on students who have experienced the TSLA approach for more than ten years.

TBL emphasizes on achieving a clearly defined outcome where language acts as the basis of achieving the outcome instead of an end in itself. Students have to be resourceful in both linguistic and non-linguistic aspects in order to complete the task. TBL requires a syllabus consisting of specific tasks to be completed, while TSLA utilizes a structural syllabus which typically involves ‘PPP’ (presentation-practice-production) in which exercises such as situational grammar exercises are the norm (Ellis, 2009). From the teachers’ observation in employing the TBL approach, TBL accelerates improvement because it usually allows the learner the autonomy
to examine the task in a more critical manner and it may bring about real situations of language use. It is preferred over TSLA that is a teacher-fronted approach where learners are typically directed to communicate in a target setting that may not be appealing as most students tend to lack a sense of ownership in the activities.

**Literature review**

TBL has gained increasing attention from researchers and educators since Candlin and Murphy’s (1987) seminal collection of papers. This approach seems to inspire engagement and it could provide a platform for communicating in any of the four skills. In the study by Ellis (2009), TBL can be input-providing tasks that engage students in listening or reading and output-prompting tasks engage them in speaking or writing. Many tasks integrate more than one skill and usually require two or more skills. An activity is considered a ‘task’ when it fulfills the following criteria:

i. the primary focus should be on ‘meaning’ where students should focus on processing the semantic and pragmatic meaning of the utterances
ii. there should be a ‘gap’ where students need to infer meaning and to express an opinion
iii. students should greatly depend on their own resources to complete the activity
iv. there is a clearly defined outcome other than the use of language and language only serves as the means of achieving that outcome

TBL is similar to other kinds of language teaching because it also entails both design and methodology. Decisions also need to be made regarding the type of tasks to be given in order to achieve a particular outcome, the content of the tasks that enlists integration of certain language skills and the sequence of the tasks so as to best facilitate the learning experience. TBL emphasizes the role of tasks in creating contexts for natural language use and promotes learner-centeredness. It is important to note that TBL should be seen as something complementary to TSLA. According to Widdowson (2003), TSLA is likely to result in ‘encoded usage rather than realization as purposeful use’. On the other hand, TBL seems to be more engaging and enjoyable as students are given the freedom to explore the richness of language in an attempt to achieve a particular task or goal.

**Methodology**

Reflective writing is a core feature of TBL in the AUSMAT programme. In the study by Farrell (2012), reflective essays serve as a compass for students to stop, look and discover where they are at the moment and provide a direction as to where they want to go in the future. As Dewey pointed out (1933), reflective inquiry is not just mulling things over that interest us, which unfortunately seems to be a wide interpretation of reflective thinking today. He viewed reflective thinking as an active, driven and careful consideration of any belief so that people can engage in intelligent thought and action rather than routine thought and action. For the purpose of this study, the students are required to write reflective essays after completing each task. By reflecting, students look back at the task in order to show what they have learned. They need to explain what happened, how they felt about the task, what they have learned and whether they could have handled things differently in the future. Apart from that, they are required to reflect and assess their own progress and compare both their TBL experience with their previous TSLA experience.

**Scope of investigation**

The subjects of this paper are students in the Australian Matriculation (AUSMAT) Programme who has taken English as an Additional Language or Dialect (EALD) core subject. The AUSMAT Programme takes about ten months to complete and is divided into two semesters. In each semester, students are required to produce four tasks, comprising investigations, reports and oral presentations which evaluate students on the core skills of listening and speaking, as well as reading and writing, thereby making it a TBL approach programme. At the end of the programme, students are required to sit for an extensive final examination which comprises a practical (oral) examination and a written examination that include sections on listening, reading and viewing, and extended writing. As students needed to master these skills in a relatively short period of time, the TBL approach is chosen for its effectiveness in assisting students to better master the language. Students’ reflective essays written after each task completed in the subject EALD will be used as evidence to suggest that TBL produce noticeable improvement at a seemingly faster rate.
Results and discussion

TBL differs from TSLA. TBL syllabus consists of unfocused tasks; that is, the content of the instructional programme is specified in terms of the tasks to be completed (Prabhu, 1987 as cited in Ellis, 2009), whereas TSLA teaching revolves around a set syllabus in which exercises e.g. situational grammar exercises are the norm. TBL increases the opportunities for student-initiated output as opposed to TSLA where teacher-directed output is the norm. TBL also builds a sense of camaraderie and encourages more teamwork among the students, instead of focusing on individual efforts only. In TSLA settings, students may unconsciously be more self-centered. Another advantage that TBL has over TSLA is that it fosters creative and critical thinking skills which are not usually emphasized in the latter.

The teachers’ observation shows that there was resistance from students when TBL was initially introduced. Some students were at lost because there was no right or wrong answer to a particular task. They were rather skeptical about their own opinions and expression of thoughts and constantly checked with the teachers for the ‘right answer’. They expected to be spoon-fed and this is likely due to the fact that they were accustomed and familiar with the ‘traditional’ teaching or the TSLA approach that they have undergone for more than a decade. Hence, with TBL, the teachers have to perpetually encourage students to be opinionated and advise them to substantiate any statements made by them with relevant evidence such as examples, analogies and statistics. A lot of coaching, motivation and encouragement had to take place at the initial stage in order to instill confidence in the students. However, after completing the tasks, the students reflected on their experience and expressed their views as follows:

**Question 1: Have your written and oral language skills improved faster using the TBL approach?**

**Summary of students’ responses**
Majority of the students responded that TBL approach helped to improve written and oral language skills faster than TSLA. A few students highlighted that it helped to improve skills ‘greatly’ or ‘a lot; or only ‘slightly’. However, some weaker students preferred TSLA approach to help them learn written skills better.

**Sample of students’ responses**
Sample 1 – ‘more freedom to write and speak…explore how to play with language… valuable learning curve’
Sample 2 – ‘able to speak more fluently and confidently’
Sample 3 – ‘oral skill improved because of the chance to speak in front of the class’

**Question 2: Which approach was more interactive, enjoyable and effective?**

**Summary of students’ responses**
Overall, students responded positively to this question and they enjoyed the TBL experience. Several stated that TSLA was a little boring as it required minimal participation from the students. Most of the students agreed that TBL is an effective way to improve language skills.

**Sample of students’ responses**
Sample 1 – ‘TBL is more fun and tasks are done in groups…learn to work together’
Sample 2 – ‘interactions help me to understand the reference materials better and the atmosphere is more exciting’
Sample 3 – ‘TBL is far more effective to improve language proficiency’

**Question 3: Which approach worked best to promote involvement, inculcate responsibility and a sense of ownership?**

**Summary of students’ responses**
Overwhelmingly, students responded that TBL worked best to promote involvement, inculcate responsibility and a sense of ownership compared to TSLA.

**Sample of students’ responses**
Sample 1 – ‘TBL taught me to be more responsible and independent’
Sample 2 – ‘we will protect our work…not let others copy’
Sample 3 – ‘every student is involved…no one is left out’
Conclusion and recommendations

In the present study, the researchers have observed the effectiveness of TBL for students who have taken the EALD subject in the AUSMAT Programme. The study tried to compare the students TBL experience with their previous TSLA experience. The findings of this study is parallel to the teachers’ observations that TBL seems to accelerate improvement and makes learning more interactive, enjoyable and effective. This research attempts to make some contributions towards a better understanding of TBL and help to enhance the students’ learning experience in the effort to encourage students to master the English language. The favourable experience of TBL could be further extended to learning other academic subjects.

References

Understanding Student Approaches To Learning Among TARC Students

Teoh Hee Chong
Faculty of Educational Studies
University Putra Malaysia, Malaysia
hcteoh2008@hotmail.com

Yap Teng Teng
School of Social Science and Humanities
Tunku Abdul Rahman University College, Malaysia
yaptteng@yahoo.com

Abstract

This study aims to evaluate the learning characteristics of Tunku Abdul Rahman College (TARC) students based on three learning approaches (surface approach, deep approach and achieving approach) and six subscales, namely three learning motives (LM) and three learning strategies (LS). A survey form adapted from Biggs’s study process questionnaire (SPQ) was distributed to a total of 193 students. This study employed descriptive correlation research design as to address the research questions. The results of the study indicated that TARC students were more prone to employ deep approach. Further analysis revealed a combination of “achieving strategy and deep motive” was the most popular approach among students. The pattern of surface and achieving approaches showed significant differences across subject variable. As a result, proposed teaching methods were introduced to suit the needs of these major learning characteristics among students.

Keywords: Approaches to learning; Learning motives; Learning strategies; Disciplines

Introduction

Student Approaches to Learning (SAL) can be defined as how learners process and handle the information or experience obtained. Different individual uses different approach to interpret and analyse the information as to absorb them to become part of learner’s knowledge. The issue of SAL is important due to its close relationship with academic achievement of students (Swanberg & Martinsen, 2010; Rodriguez, 2009; Rollnick et al., 2008; Kek et al., 2007; Biggs & Moore, 1993).

According to Marton and Saljo (1976), there are two different ways in learning called “surface” and “deep” approach. Students who adopted surface approach focused on rote-learning or memorization of facts because they just aim to achieve minimum requirement. In contrast, deep learners will study the content precisely, details and aim for complete comprehension of the meaning (Dasari, 2009). There is another approach to learning which developed much later time, namely “achieving” (Biggs & Moore, 1993; Biggs, 1987) or “strategic” approach (Ramsden, 1981 as cited in Entwistle, 1991). Learners of achieving/strategic approach will try to excel in their study by knowing the assessment requirements and criteria; they will prepare and try to fulfill whatever their teacher wants (Biggs & Moore, 1993). These three SALs will be the main discussion pertaining to learning process of Tunku Abdul Rahman College (TARC) students in current study.

Previous studies have revealed that a surface approach to learning is related to poor quality processes and outcomes (Hanin Naziha Hasnor, Zaiton Ahmad & Norshidah Nordin, 2012; Rodriguez, 2009; Rollnick et al., 2008; Kek et al., 2007); whereas a deep approach to learning is related to high quality processes and outcomes (Swanberg & Martinsen, 2010). The achieving approach also tends to do well in exam, but more externally driven to garner high grade in examination (Biggs & Moore, 1993). Notwithstanding the previous findings supporting the importance of SAL in learning processes, many Asian or South East Asian students still prefer to employ surface approach rather than deep approach in their study. Asian learners relied very much on syllabus
and textbooks, more teacher-directed and less self-directed in classroom discussion (Leung et al., 2007; Tani, 2005; Ziguras, 2001; Kember, 2000). In Malaysia, Fung (2010) who studied Malaysian secondary and undergraduate students described them as surface rote learners and unfamiliar with deep approaches to learning. Their aim of study was merely to pass examinations and get a good job after graduation. Thang (2009) also revealed that a majority of students from public and private universities in Malaysia were lack of personal autonomy and preferred a teacher-centred approach to learning. Ziguras (2001) quoting lecturers feedbacks indicated that Malaysian students expecting to be spoon-fed, scared of saying the wrong things, wanting more direction, supervision and greater attention from lecturers. Pauline Goh (2005) who conducted the study of SAL in Malaysian private higher education institution revealed the same findings. However, she explained that most of the surface learners were not satisfied with their SAL as it undermined the quality of their learning outcomes.

Be that as it may, there were previous studies revealed the other way round. Ling et al. (2005) while comparing approaches to learning between Australian and Malaysian undergraduates in private educational institutions found that there was no significant difference in deep approach. Students in Malaysian score slightly higher in surface approach but the magnitude was very small. Thang (2005) in her research conducted on distance learners and on campus learners at one of the public universities in Malaysia also revealed the score on deep approach was higher irrespective of learning modes. Recently, few studies in Malaysian public higher institutions also found that undergraduates prone to apply deep approach or achieving approach rather than surface approach (Hanin Nazitha Hasnor, Zaiton Ahmad & Norshidah Nordin, 2012; Zahariah Mohd Zain, Irfah Najihah Basir Malan, Fauziah Noordin, Zaini Abdullah, 2012; Teoh, H.C., Maria Chong Abdullah, Samsilah Roslan, Shaffe Daud, 2012).

Therefore, this study will further examine the phenomenon of SAL in Malaysian private higher institutions and deepen the understanding of this learning characteristic especially among TARC students. The combination of three learning motives (LM), namely surface motive, deep motive and achieving motive and three learning strategies (LS), namely surface strategy, deep strategy and achieving strategy will be taken into consideration as to provide more information regarding SAL of the respondents. By recognizing the learning characteristics of students, researchers hope that it will help students and teachers to identify their weaknesses and finding solutions for the difficulties faced during learning or teaching processes.

In order to achieve the above mentioned research objective, researchers have set the following research questions as to guide the following discussion.

1) What are the approaches to learning adopted by the students at TARC?
2) What are the approaches to learning adopted by the students at TARC based on learning motive (LM) and learning strategy (LS)?
3) Does discipline have an impact on the approaches to learning employed by students at TARC?

Methodology

This study employed a descriptive-correlation research design with questionnaire survey. A total of 193 students (School of Social Science and Humanities, SSH = 116, and School of Arts and Science, SAS = 77) were selected from a course offered in main campus of Tunku Abdul Rahman College (TARC), which located at Setapak, Kuala Lumpur, to participate in this study. The students were asked to complete the questionnaire distributed to them. In order to secure responses, the questionnaire was administered during class session and the return rate was 100%.

In this study, the existing Study Process Questionnaire (SPQ) designed by Biggs (1987) was adapted and used as to collect the research data from respondents. The modified SPQ contains of 27 items divided among the three approaches to learning (deep, surface and achieving) into six motive and strategy scales. Each response to an item is to be answered on a four points Likert scale that describes the match with the respondent’s behaviour: 1= strongly disagree; 2= disagree; 3= agree; and 4= strongly agree.

As to tailor the SPQ into Malaysian learner context, researchers considered the SPQ (Biggs, 1987), R-SPQ-2F (Biggs et al., 2001) and R-SPQ-2FM (Tan, 2005) in order to modify the subscales which better suit the comprehension of local students. For instance, the original item of “I find that at times studying gives me a feeling of deep personal satisfaction” modified to “sometimes, I am deeply satisfied with my study experience” and “I only study seriously what’s given out in class lecture or in the course outlines” has been modified to “I only study seriously what’s given out in class or in the course outlines”. Besides, some of the subscales were borrowed from R-SPQ-2FM as they have taken the local learner cultural issues into consideration (Tan, 2005). The items which have been selected form R-SPQ-2FM such as “I want top grades in all of my courses so that I...
will be able to select from among the best jobs available”, “When I do well in my studies, it is because I am good at it”, “I reflect on what I learn and relate it to real-life experience”, etc. were inserted into the questionnaire.

Subsequently, researchers employed all items in the adapted SPQ to test its reliability in TARC context in this study. The Cronbach’s alpha for surface, deep and achieving approach are shown in Table 1. According to DeVellis (2003), ideally, the Cronbach’s alpha coefficient of a scale should be above 0.7. In this study, achieving approach was the only scale fulfilled this requirement, surface approach and deep approach both showed the alpha values lower than 0.7. Pallant (2007, p95) has added to the discussion of this issue “Cronbach’s alpha values are, however, quite sensitive to the number of items in the scale. With short scales (e.g. scales with fewer than ten items), it is common to find quite low Cronbach values (e.g. 0.5)”. As a solution to those scales which have less than ten items, Briggs and Cheek (1996, as cited in Pallant, 2007) suggested reporting the mean inter-item correlation and the recommended range was between 0.2-0.4.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Items</th>
<th>Alpha value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface approach</td>
<td>8</td>
<td>0.61</td>
</tr>
<tr>
<td>Deep approach</td>
<td>9</td>
<td>0.66</td>
</tr>
<tr>
<td>Achieving approach</td>
<td>10</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Table 1: Cronbachs’ alpha for SAL

After examined the inter-item correlation, researchers found that deep approach has fulfilled the requirement (range between 0.249 – 0.455) but not for surface approach. They are two items in surface approach which violated this principle, namely item 9 “I can pass most of the examinations by remembering the main parts rather than trying to understand them.” (0.197) and item 21 “I find it best to accept the fact and description of my lecturers” (-0.58). Since these two items are categorized in LM and LS respectively, therefore researchers deleted them from surface approach which increased the alpha value to 0.68. Besides, the range of inter-item correlation has improved to 0.345 – 0.509.

Findings

What are the approaches to learning adopted by the students at TARC?

To address the first research question of this study, namely identify the learning approaches of TARC students, the data collected was analyzed using descriptive statistic. Findings in Table 2 indicates the learning approach most preferred by students was “deep approach” (M=2.74), followed by “achieving approach” (M=2.72) and “surface approach” (M=2.65).

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Variables</th>
<th>SA</th>
<th>DA</th>
<th>AA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td></td>
<td>.65</td>
<td>2.74</td>
<td>2.72</td>
</tr>
<tr>
<td>Standard deviation</td>
<td></td>
<td>0.49</td>
<td>0.36</td>
<td>0.38</td>
</tr>
</tbody>
</table>

Note: valid N = 184; SA = Surface Approach; DA = Deep Approach; AA = Achieving Approach.

Table 2: Distribution of students approaches to learning

What are the approaches to learning adopted by the students at TARC based on learning motive (LM) and learning strategy (LS)?

Table 3 highlighted the preferred scores regarding LM and LS in bold. The finding indicated that “deep motive” and “achieving strategy” is the most preferred learning approach among TARC students. This is in line with finding of SAL using traditional way where “deep approach” is the most popular learning approach (refer to Table 2). According to Leung et al (2004, p191), students who preferred “deep motive and achieving strategy” are “typical hardworking students as they are interested in learning and intrinsically motivated to revise on a regular basis. Students employing the hardworking approach do not need additional support from teachers or the teaching environment.”
A further investigation on the correlation between LM and LS has been carried out in order to garner more information and better understanding of their relationship. Table 4 shows that they were significant positive correlations between LM and LS. This study reconfirms that the traditional learning phenomena; for instance, SM leads to SS (0.519 at a significance level of 0.0001), DM is strongly related to DS (0.569 at a significance level of 0.0001), and AM induces AS (0.513 at a significant level of 0.0001).

<table>
<thead>
<tr>
<th>SM</th>
<th>DM</th>
<th>AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS C</td>
<td>C</td>
<td>0.519*</td>
</tr>
<tr>
<td>Si</td>
<td>g.</td>
<td>0.000</td>
</tr>
<tr>
<td>DS C</td>
<td>C</td>
<td>-0.069</td>
</tr>
<tr>
<td>Si</td>
<td>g.</td>
<td>0.346</td>
</tr>
<tr>
<td>AS C</td>
<td>C</td>
<td>-0.065</td>
</tr>
<tr>
<td>Si</td>
<td>g.</td>
<td>0.374</td>
</tr>
</tbody>
</table>

Note: SM=surface motive; DM=deep motive; AM=achieving motive; SS=surface strategy; DS=deep strategy; AS=achieving strategy

* Correlation is significant at 0.001 level (2-tailed)

This study reconfirms that the traditional learning phenomena; for instance, SM leads to SS (0.519 at a significance level of 0.0001), DM is strongly related to DS (0.569 at a significance level of 0.0001), and AM induces AS (0.513 at a significant level of 0.0001).

Table 4: Pearson Correlation of Learning Approaches of Educational Psychology Course Students.

Besides, positive relationship also found between AM-DS and DM-AS (0.430 and 0.582 at significant levels of 0.0001 respectively). These results indicated that most students did apply DM together with AS and AM with DS in their learning processes. This result confirmed that deep approach and “achieving strategy deep motive” are two most popular SALs among TARC students.

Does discipline have an impact on the approaches to learning employed by students at TARC?

Tables 5 revealed the differences between mean scores of SAL across two different disciplines, namely science for SAS students and social science for SSH students. Apparently that the mean scores for all the mean scores in approaches to learning for social science students are higher than science students.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Descriptive Statistics</th>
<th>Science</th>
<th>Social Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface approach</td>
<td>Mean</td>
<td>2.50</td>
<td>2.74</td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>0.52</td>
<td>0.45</td>
</tr>
<tr>
<td>Deep approach</td>
<td>Mean</td>
<td>2.70</td>
<td>2.76</td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>0.38</td>
<td>0.35</td>
</tr>
<tr>
<td>Achieving approach</td>
<td>Mean</td>
<td>2.61</td>
<td>2.80</td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>0.39</td>
<td>0.35</td>
</tr>
</tbody>
</table>

Table 5: Distribution of students approaches to learning between science and social science

An independent-samples t-test (Table 6) was conducted to compare the mean of these mean scores for science and social science students.
### Table 6: Independent sample t-test analysis for the SAL with disciplines.

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>SA</td>
<td>Equal variances assumed</td>
<td>2.126</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>3.308</td>
</tr>
<tr>
<td>DA</td>
<td>Equal variances assumed</td>
<td>.390</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>1.178</td>
</tr>
<tr>
<td>AA</td>
<td>Equal variances assumed</td>
<td>.074</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>3.448</td>
</tr>
</tbody>
</table>

Note: N = 193; SA = Surface Approach; DA = Deep Approach; AA = Achieving Approach.

There were significant differences in the mean “surface approach” mean score for social science students (\(M = 2.74, SD = .45\)) and science students [\(M = 2.50, SD = .52; t (189) = 3.408, p = .001\)]; and “achieving approach” mean score for social science students (\(M = 2.80, SD = .35\)) and science students [\(M = 2.61, SD = .39; t (185) = 3.516, p = .001\)]. Inspections of the two means for “surface approach” and “achieving approach” suggested that social science students were more inclined to adopt “surface approach” and “achieving approach” compared to science students. The magnitude of the differences in the means was small for “surface approach” (\(\eta^2 = .057\)) and moderate for “achieving approach” (\(\eta^2 = .061\)).

### Discussion and Conclusion

The results of current study on SAL revealed that most of the TARC students preferred “deep approach” rather than “achieving approach” and “surface approach”. This finding is deviated from the previous studies who argued that Malaysian students are surface learner (Fung, 2010; Ling et al., 2005; Smith, 2001; Wan Zah Wan Ali, 2000) but in line with the recent research findings. As Biggs et al. (2001) have emphasized that learning approaches are the outcome of both individual characteristics and the teaching context; therefore this result should be read in accordance to the nature of relationship between teaching context, students and task.

There are several reasons which may cause students to adopt DA compared to other two approaches. Factors such as teaching practices with imagination and enthusiasm, prompt feedback to student work, and the issues of teacher’s fairness will encourage students to employ DA (Pauline Goh, 2008). Course design where contents, delivery, activities, and assessments which emphasize group work, creativity, self-learning and library research will also stimulate deep learning. Besides, when students perceived the new learning environment as positive in terms of the clarity of its goals, the usefulness of the textbook and the workload, it will encourage them to adopt deep learning.

A further study on LM and LS revealed that the most popular combination of LM and LS is “DM-AS”. Therefore, a more accurate and specific term about the learning approach applied by the respondents in this study is “hardworking approach” (Leung et al., 2004). Leung et al. (2004) characterized these students are interested in learning and willing to put effort to score higher marks in their study. They are independent, internal motivated and can improve even without the support from teachers or environment. The suggested teaching methods to cater this group of learners are enhancing their metacognitive learning strategies.

This study also revealed that social science students scored higher in surface and achieving approach compare with science student. There was no significant difference between science and social science students on deep approach. However, due to the course taken in these two schools are difficult to categorized them into pure science, applied science, pure arts and applied arts categories, therefore it is not wise to over-generalize the findings of this study. More courses in these two schools need to be examined in order to find out the relationship between SAL and disciplines. Hence, it is suggested future research can be carried out to examine the pattern of SAL.
Acknowledgements

The writers would like to thank Professor John Biggs for kindly allowing the study process questionnaire to be adapted and used for this study.

References


Personalising Education for Today’s Students: Is it Possible?  
(WORKSHOP)

Lauren Wilson  
lauren.elizabethwilson@taylors.edu.my

Arlene Corrigan  
Taylor’s College Sri Hartamas, Malaysia  
Arlene.corrigan@taylors.edu.my

Yes, it is possible to personalize education and keep your sanity! One high-yield approach is to embed cooperative learning strategies into your lessons. Cooperative Learning gives each student the opportunity to be fully engaged to assess their own learning and improve their results. In this interactive workshop participants will experience firsthand some simple and effective strategies that engage all learners. Prepare to have fun and learn at the same time.

Facilities required:

a spacious room with participants at tables in groups of four. Round tables are ideal but any arrangement that would allow two sets of partners to sit in close proximity face-to-face would be workable. We would also need a chart paper stand and markers, and a board and projector for a PowerPoint display.

Maximum number of participants: 60

Intended audience and degree of expertise or background knowledge required by participants:

Little or no experience with Cooperative Learning as a teaching strategy, or some knowledge and experience but a desire for a refresher or new ideas. The strategies modeled will be suitable for both elementary and secondary classrooms but our focus will be on the application of Cooperative Learning in secondary school classrooms.

Statement of workshop objectives:

Participants will:

- understand the research that indicates cooperative learning by engaging each student in the learning, improves student achievement, and prepares students for 21st century employment.
- experience and process structures and strategies that personalize learning and improve achievement.

Detailed description of workshop contents, including activities for participants:

According to Spencer Kagan (2008), a leading educational researcher in the field of cooperative learning, “When we turn the chairs around in our classroom and have students work together on a regular basis, we radically transform classroom dynamics. Students who otherwise would not be motivated become engaged. Students have the opportunity to do what students most want to do—interact in positive ways with their peers. Students hold each other on task and regularly receive encouragement, tutoring, and praise. They feel included. Students become part of a community of learners; they experience joy in working and learning together. They see the teacher as someone who coaches and assists them, someone on their side, not someone who stands back and evaluates them. Students who work in teams feel better about themselves—not only because their need for inclusion is met, but also because they are more successful academically (?). And, of course, learning becomes more fun—for the students, and for the teacher.
There are so many positive dimensions of cooperative learning that it is impossible to determine how much each contributes to the academic and social gains that result. Certainly they contribute in different ways and different amounts in different classes and for each individual student.

Some schools turn to cooperative learning because they are seeking to enhance achievement, differentiate instruction, and employ effective formative assessment strategies. Others want to improve race relations. Others include cooperative learning as part of their character development program or their violence prevention program. Yet others wish to prepare students for the workplace of the future—a workplace in which teamwork skills and communication skills will be at a premium. And cooperative learning works. It produces all of these positive outcomes.”

- The workshop will start with a team-building activity and an illustration of why team-building is important in the creation of a collaborative classroom culture.
- We will do a pre-self-assessment, using chart paper, to find out what the participants already know about CL and personalized learning.
- In true CL style, we will present the four important components of CL (positive interdependence, individual accountability, equal participation and simultaneous interaction), the research on how CL and personalization improve student achievement, various ways of grouping students, the rationale for engaging students in order to enhance their retention of material, the advantages of selecting a random reporter when doing group work, and the connections among CL, personalization and assessment. We will also give participants the opportunity to apply some of their new knowledge specifically to address their subject area or educational context.
- We will model some or all of the following CL structures while presenting the information indicated above: Four Corners, Timed Pair Share, Line-Ups, Numbered Heads Together, Duelling Flip Charts, Listen Write, and Inside-Outside Circle. Participants will be fully engaged by these interactive structures as they experience them firsthand. Because of the nature of the instruction, they will also remember them, and will be encouraged to use them in their classrooms right away.
- The workshop will end by revisiting the pre-assessments to reflect on new learnings and adding new knowledge to the chart paper on which the pre-assessment was done.

A list of previous presentations on the same topic or publication references or (optionally) nominate one or two referees whom the conference committee may contact:

- Lauren Wilson has presented on Cooperative Learning, Cooperative Learning in Secondary Classrooms, and Cooperative Learning in Mathematics at the National Conference for Teachers of Mathematics in Edmonton in 2002, at the Toronto Learning Consortium Conference in 2003, many times for EOSDN (Eastern Ontario Staff Development Network), and many times for GLACIE (Great Lakes Association for Cooperation in Education). She has also presented on other topics for EOSDN, for ASCD (Association for Supervision and Curriculum Development), for the Ontario Ministry of Education, and for the Allied Forces North school in Brunsumm, the Netherlands. She has published two papers: “The Renfrew County Learning Team – A Professional Development Success Story” for the Ontario ASCD Journal, and “The Principal as a Curriculum Leader” for the OISE (Ontario Institute for Studies in Education) journal Orb. The conference committee may contact either one of these teachers, both of whom have been co-presenters with Lauren, as referees: Cheryl Welbanks-Virgin, Chemistry and Student Success teacher at Arnprior District High School in Ontario Canada (welbanksc@renfrew.edu.on.ca) and Pam McCallum, Mathematics teacher and Instructional Coach at Madawaska Valley District High School in Ontario Canada (mccallump@renfrew.edu.on.ca).

Association (GSAED) Interdisciplinary Conference, Ottawa, ON; Course Developer for Mathematics, Grade 9 Academic Course Profiles, Catholic Curriculum Cooperative Writing Partners (1999). Referees: Dr. Christine Suurtamm, University of Ottawa, Canada, whom I have worked with on several educational research projects including Studies of the Implementation of the Early Mathematics and Reading Program, The Canadian Mathematics Education Study Group (2005) and most recently with secondary mathematics teachers in the Renfrew County Catholic District School Board (2010-2011); Tracy Joyce, Mathematics Coach, RCCDSB, Pembroke, Ontario, and Gayle Bishop, superintendent (Renfrew County District School Board), whom I have co-presented with on cooperative learning, mathematics, and differentiated instruction.

A summary of the workshop presenter’s qualifications:

- Lauren Wilson is the newly appointed principal of Taylor’s College Sri Hartamas in Kuala Lumpur, Malaysia. She has a Masters in Educational Administration from the University of Ottawa, a Bachelor of Education in Quantitative Methods from York University, Toronto, and an Honours Bachelor of Science in Mathematics and Biology from York University. She spent 33 years as a teacher of Mathematics and Computer Science, a Curriculum Coordinator, and an Administrator for the Renfrew County District School Board in Ontario Canada, retiring from that position in July 2012. She was an active member of the Eastern Ontario Staff Development Network, receiving their Outstanding Service Award in 2009. She is passionate about assessment and evaluation, cooperative learning, mathematics education, leadership, collaboration, students and teachers.

- Arlene Corrigan has been in public education as secondary mathematics teacher, vice principal and principal in Ontario Canada for 30 years before coming to Taylor’s College as Principal of Cambridge A Levels. Arlene has a Masters in Education in Educational Leadership from Nipissing University, a Bachelor of Education from the University of Toronto, and a Bachelor of Mathematics from the University of Waterloo. In her role as Principal of Student Success in Ontario she was involved in teacher training that focused on cooperative learning, assessment, student engagement, differentiated instruction, and student success. Arlene gets her inspiration from teachers. Her current interest is in transforming teaching to address the needs of 21st Century learners. As a mother of four, she firmly believes that the best skill we can give our children is to teach them to think.
C3-6

Active Learning Through Critical Discourse Analysis: An Analysis Of An Interview On Oprah Winfrey Show

Ms Surita Mogan
Department of Modern Languages
Faculty of Creative Industries
Universiti Tunku Abdul Rahman
surita@utar.edu.my

Ms Kiran Kaur
Department of Modern Languages
Faculty of Creative Industries
Universiti Tunku Abdul Rahman
kiran@utar.edu.my

Abstract

Active learning is a strategy that can be used to actively engage students in the learning process, including group discussions and problem solving through textual analysis. While Critical Discourse Analysis views language as a social practice to which the world is presented. In this paper an analysis of Critical Discourse Analysis (CDA) is done on the interview between Oprah Winfrey and Her Majesty Queen Rania AL-Abdullah. The Purpose of this interview is to discuss about terrorism and also to clarify the misconception of Islam as a religion. This classroom activity allows students to understand the approach to the study of text and talk which views language as a form of social practice and attempts to unpack the ideologies, improve critical thinking skills, increase retention and improve interpersonal skills. The analysis of this talk show is divided into seven parts namely representation of the world, identity of Oprah and Queen Rania, the relationship of Oprah with Queen Rania and her audience, the relationship of Queen Rania with her people/her religion/Oprah/audience. Besides that, the parts also include Framing, Absences, Foregrounding and Conclusion. The scope of this research investigates the elements of active learning through political discourse and ideologies embedded in the genre of the interview. The findings suggest that the Representation of the World, Identity, Relationship, Framing, and Absence are seen from the beginning of the interview. In addition the whole world is fighting against terrorism and phrases and examples from the interview supports this claim.

Keywords: Active Learning, Critical Discourse Analysis and Ideologies

Introduction

Active learning is a process whereby students engage in activities, such as reading, writing, discussion, or problem solving that promote analysis, synthesis, and evaluation of class content. This paper focuses on how active learning is achieved through reading using Critical Discourse Analysis. In short anything that is being said or written about the world is articulated from a particular ideological position which means that language is not a clear window but a refracting and structuring medium. Therefore using CDC in teaching to promote active learning attempts to unpack the ideology underpinnings of discourse that have become so naturalize over time.

The Purpose Of This Analysis

The Oprah Winfrey show is a popular television show produced in the USA but widely distributed in other countries. Each show addresses a topic of concern to people in their social or personal lives, with a panel of invited guests including ordinary people talking about their own experiences and contribution. In this project, an analysis of CDA is done on the interview Oprah Winfrey had with Her Majesty Queen Rania. This discourse is an entertainment and an information discourse encouraging students to use active learning in classrooms.
This interview took place on the 5th of October 2001, barely a month after the September 11 attack took place. This analysis is also to clarify the misconceptions of Islam as a religion and its relation to the issue. In Norman Fairclough books, Language and Power (2001) and Critical Discourse Analysis (2010) there is a three dimensional framework for studying discourse, where the aim is to map three separate forms of analysis onto one another. Analysis of (spoken or written) language text, analysis of discourse practice (process of text production, distribution and consumption) and analysis of discursive events as instance of social cultural practice. Therefore, this analysis aims to look at:

i. Political and economic context of language usage and production
ii. Meaning that lies beyond the grammatical structure
iii. Description of the text
iv. Interpretation of the relationship between text and interaction
v. Explanation of the relationship between interaction and social context

Methodology

In this paper, a critical analysis on Oprah Winfrey talk show will be done. This talk show is an interview with Queen Rania. The analysis of this talk show will be divided into seven parts in terms of:

i. Representation of the world
ii. Identity of Oprah and Queen Rania
iii. Relationship of Oprah and - Queen Rania
   - Her people/audience (Americans)
iv. Framing
v. Absences
vi. Foregrounding
vii. Conclusion

Analysis and Structures Used in the Interview

This interview has elements of political discourse where it involves promoting viewpoints from Her Majesty to clarify certain misinterpretations about Islam and terrorism. This ideology involved in this interview is to persuade people (the world) to see things from a different angle about Islam and the religion. For example, the women's liberation in the Islamic Society. Queen Rania is giving her explanation based on her own understanding of the religion. The genre of this interview is not narrative because it involves two people which are the interviewer and interviewee as well as the format of question and answer. In this interview, Oprah guides the conversation by posing questions.

Representation of the World

In this interview, the representation of the world is seen from the beginning of the interview, "Bordering on Israel and Saudi Arabia, Jordan is a key U.S ally in the Middle East. Virtually all of Jordan's residents are Muslims" This shows that Jordan has a good relationship with U.S despite the fact that the residents are Muslims and it is an Islamic country. It also shows the serendipity of Jordan which is in between Israel and Saudi Arabia. Jordan is very fortunate politically and geographically, thus making it a very good ally with the U.S.

In addition, the whole world is working hand in hand together in the fight against terrorism regardless of their race, religion and political background through their own expertise such as intelligence, military or economy. Example taken from the interview are phrases such as "United States and the rest of the world", "For the first time in history, we all have a combined objective", "we all", "fight common enemy together", "fight common war together" and "come together."

The representation of the world is also seen in the portrayal of America as the victim. For example "......I think it came as a shock to so many of us that other people hated us so much.” In the eyes of other countries, America is looked upon as a role model, powerful and desirable country. Examples taken from the interview to show this kind of sentiments are "They do not hate the Americans", "They do not hate the American way of life", "American model as one that needs to be replicated” and "One that they aspire to achieve."
Meanwhile, phrase such as "....majority of Muslims, they do not hate the American way of life" is a repetition or emphasis by Queen Rania of the representation of Muslims as a whole in an attempt to ensure the Americans that Muslims do not hate them. This phrase may also make the U.S citizens believe in her. Another phrase "Muslims were also shocked at the incident of September 11" shows that only a minority of people feel they have been unjustly treated by the U.S, they feel the U.S foreign policy might have been partial and not completely fair and they want their voices to be heard. The majority, however, is still in shock and trying to comprehend the enormity of the tragedy especially when Queen Rania visited Ground Zero as well as the families and victims. The language used in the interview also shows the individual preference or the personal point of view. For example, the phrase "personal choice" is frequently used in Queen Rania's answers and this shows Her Majesty's individual views.

**Identity**

The identity of Oprah in this interview is more of an authority figure that asks the questions and leads the interview. As an entertainer in her own show, she provides information and entertains as it is a live show. Oprah is also a member of the public as she represents the people of the United States of America and speaks on behalf of them. For example, "....I think it came as a shock to so many of us that other people in the world hated us so much." Oprah also acts as the one who holds and controls the microphone. She also evaluates the contribution given as well as controls the length and order. For instance, when she asks a question, the guest speaker answers and this shows that she controls the flow of the talk show. She also evaluates the contribution through asking question such as "Are you a practicing Muslim?" Here, she is evaluating Queen Rania as a Muslim.

Oprah's identity also includes her role as a serious social investigator in this show. For example, this is a serious topic; therefore she is investigating certain serious issues on religion, questioning Her Majesty to get clarification about misconceptions between the religion and its social as well as cultural practices. For instance, the issue about 'wearing of burqa' where she questions the attire of Muslim women and "What is life like for Muslim women in Jordan? I think we all have misinterpretation that the women wearing the robes are dominated by men, that the women don't have a voice of their own."

Oprah also plays the role of a moralist where she questions about "honour killings." She also plays the role of an educator where she educates the public about what Islam means and what its like to be a Muslim woman. Oprah also directly addresses the viewers on the theme of the program. In the beginning itself, she gave a statement to inform the audience what the show is about. For example, "Their 31 year old Queen Rania says now more than ever it is important to clarify misconceptions about her religion, Islam and Muslim women.” Here she gives a clear topic at the beginning of the show.

Meanwhile, Queen Rania's identity is the interview is as a figure of authority as she is the Queen and she has certain amount of power in her hands, thus when she speaks, the people will listen to her. Queen Rania also has the authority to make people believe in what she says because the topic is about Islam and she is a respected figure. She portrays herself as a person who knows about religion because she claims she is a practicing Muslim. Queen Rania also acts as a political figure because she represents the Jordanian monarch. In addition, Queen Rania believes in herself, she shows confidence. For example, "I believe in what I am doing" and "I feel that people of my country accept me the way that I am."

**Relationship**

In terms of relationship, Oprah invited a guest who has the figure of authority, a Muslim, a woman, to address the issues that are going to be discussed. Oprah also asks question in the beginning "You were recently ...., you went to Ground Zero....What was that like?" Here it shows that Oprah wants to see the same emotions felt by the U.S people in Queen Rania. Oprah also wants the audience/viewers to see/hear Queen Rania's answers and make their own judgment about Muslims community because Queen Rania represents the majority of Muslims. The usage of the pronoun "We" is relationally significant as it represents the speaker, her audience, and everyone else as in the same boat. It assimilates the leader to the "people" (Fairclough 2001). Oprah uses the pronoun "we" to show the U.S society and to show that she is a part of them as well as their involvement as a whole. She also uses the pronoun "I". For example, "I think it came as a shock.....", "I think we all have a misinterpretation.....", and "I know you have campaigned against honour killings....." Here it shows that she is the decision maker. She asks questions about what she feels strongly about as well as what she feels the nation wants to know.
Queen Rania also uses the pronoun "we" to include her community when she speaks as well as the pronoun "I". The phrase "Personal choice" is often used in her speech maybe because she does not want to offend any party and is solely based on her own understanding of the whole issue. At the end, Oprah says "Anything that we see that doesn't represent what you are saying is a distortion of Islam, correct?" Here it shows that Oprah summarizes the whole concept about the religion by using Queen Rania's understanding and practices as the basis of Islam. Queen Rania's word choices when she explains about the religion is all about positive words with positive connotations to rebut the image of Islam made in the U.S. after the September 11 attack. She use words such as "tolerance", "about doing good", "diversity", "quality", "human dignity", "spiritual", "fulfillment", "morals" and "trying to purify your soul."

There's exercise of power in a type of face to face discourse where participants are unequal. Oprah feels that the relationship between the audience and Queen Rania should be kept very cautiously. Therefore, in this interview we can see that there are no questions from the audience. Oprah wants to keep the relationship in a very cautiously manner because she knows that this interview might turn ugly as emotions are still raw because this interview took place barely a month after the September 11 attack. It is also a very sensitive issue due to the frame. Oprah is also aware of her relationship with Queen Rania as she uses the title 'Her Majesty' to acknowledge Queen Rania and this shows the social status between the two as Oprah is a commoner and Queen Rania is from the royal family. Oprah establishes her relationship with the Queen by showing that she is there as someone who wants to learn about the religion rather than criticising. For example, the choice of words used in Oprah's questions such as "Can you help explain that to us?", "What is life like for Muslim women in Jordan?" and "Is that true?" Oprah also establishes her relationship with the people as she is very close to the Americans and she wants to help the nation to clear their doubts in their mind about this whole issue.

Framing

In terms of framing, the focus or highlight of this show is about Islam. Based on this focus, other issues were brought up in the discussion such as September 11 attack, Muslim women and terrorism. Islam is also being framed here by mentioning other cases or incidents and thus this will affect the readers' mind. For instance, when the September 11 attack occurred, other incidents were also highlighted in the media with the focus on Islam such as women's portrayal in Islamic countries, Afghan women and Osama links to terrorism.

Absence

In the aspect of absence, there is an absence of humour in this interview. This might be because this talk show took place after a tragedy. Oprah has Her Majesty Queen Rania as her guest; therefore, she has to be more formal and serious in her conversational style. At the beginning of the interview, there is also an absence of Oprah asking further details about what Queen Rania meant when she talks about the U.S foreign policies. For example, "We are talking about a minority of people who feel that they have been unjustly treated by United States. Some of them feel that U.S foreign policy might have been partial and not completely fair to all parties involved, and they want their voices to be heard." Here Oprah never asks why the U.S foreign policy was not fair. This might be because Oprah did not want to portray U.S in bad light.

Foregrounding

In terms of foregrounding, the terrorism attack is being foregrounded at the starting point of the interview to start the conversation before moving on to issues such as Islam and the lives of Muslim women. These issues were brought up because the recent attack was carried out by terrorists who claimed to have done it in the name of Islam. Therefore, the issue of religion is being questioned by the world. The lives of Muslim women were also brought up as they are treated unfairly in the name of religion and culture.

Conclusion

Active learning is achieved from this activity by using Critical Discourse Analysis (CDA). CDA is an activity that promotes thinking while reading the transcript of the interview. Students are able to synthesize the text and interpret the perception of good and bad through CDA.

Last but not least, CDA on this interview made us discover the underlying meaning of this particular discourse and help to increase consciousness of how language contributes to the domination and discover the underlying representation of relationship, identities, world and ideologies of some people by others. This interview generates controversy and is a sensitive interview as it deals with the recent attack and the issues that have been
related to the attack. However, such sensationalised issues make a good television program. Meanwhile, it is a controlled program because the guest speaker is Her Majesty and there is tension between the serious and emotional aspects as well as the experiences dealt in the issues with the search for entertainment value.

References

C3-7

Student Perspectives on The Use of Peer Tutoring In Performing Simulation-Based Tasks

Chai Ming Sing
School of Social Science & Humanities
Tunku Abdul Rahman University College, Malaysia
chaims@acd.tarc.edu.my

Lin Siew Fong
School of Social Science & Humanities
Tunku Abdul Rahman University College, Malaysia
linsf@acd.tarc.edu.my

Abstract

The main purpose of this study was to find out the impact of peer tutoring when performing simulation-based tasks. Twenty Diploma in Business Administration students with mixed English proficiency in an institution of higher learning formed four case study groups in this study. The observations, interviews and diary entries used revealed that there were various benefits experienced by both tutors and tutees during the sessions. The advantages gained by the tutors ranged from ability to provide assistance in the learning process, improves communication skills, heightened decision making skills, bolstered character-building and social skills. Whilst tutees benefited from receiving knowledge, increasing motivation, refining critical thinking, honing oral presentation skills and reducing stress in their learning environment. Debriefing sessions between the instructor and the tutors were also conducted in order to increase the latter’s confidence level in teaching.

Keywords: Peer Tutoring, Tutor, Tutees, Learning, Communication, Critical Thinking, Debriefing

Introduction

The use of peer tutoring as an alternative teaching method with higher learners’ involvement has become more and more popular in the education field, both in school (Boudouris, 2005) and institutions of higher learning (Potter, 1997; Chen & Liu, 2011). This teaching method has been found to be valuable for both student tutor and tutee (Pugh, 2005). When students are involved actively in small groups, they help one another to develop a deeper understanding of the subject matter than before. Tutors when given the opportunity to lead can also increase their confidence and communication skills in the course of explaining information to their tutees. Simultaneously, their understanding of the subject matter deepens through their teaching to others (Potter, 1997).

In peer tutoring, students are encouraged to be active and are given more accountability and responsibility in their learning. The focus on learners especially in their social interactions with others is emphasised rather than on teachers alone as in the case of traditional teaching method. A high level of participation from students in the learning process is highly encouraged in the development of critical and creative thinking skills.

In view of the advantages and educational benefits of peer tutoring as compared with traditional methods of classroom instruction where interaction among learners is minimal, this alternative teaching method could be beneficial to students in the teaching of English in Malaysia. The large number of students in a class with varying levels of interest, preparedness and language proficiency, makes the teaching of English challenging. Peer tutoring can be used to help students learn in a meaningful way. Therefore, this study explores the impact of using peer tutoring as a teaching strategy when performing simulation-based tasks in an English class.
Literature review

Many peer tutoring programmes have been used effectively to support learners academically, socially and emotionally. Examples of peer tutoring programmes that have been found to be beneficial to students are peer-assisted learning strategies, student team learning, reciprocal peer tutoring, peer-mediated instruction and interventions, and class wide student tutoring teams (Boudouris, 2005).

Peer tutoring can be used interchangeably with the terms peer-assisted learning, peer teaching, partner learning, peer education, and child-teach-child (Henning, Weidner, & Jones, 2006). In addition, the definition of peer tutoring can vary according to the types of tutees, the purpose of the peer tutoring and the context in which it is conducted (Chen & Liu, 2011; Ramasamy, 2004). Generally, tutoring focuses on specific areas of learning such as problem areas experienced by tutees (Pugh, 2005).

A peer tutor is usually regarded as a friend or fellow course-mate rather than an authoritative figure. In this study, a peer tutor is defined as a student who is more able and knowledgeable than the tutees in the group and has voluntarily agreed to facilitate the discussions of the group when performing simulation-based tasks.

Theories of learning

In peer tutoring, social interaction is an important component in the process of learning. The interaction among tutors and tutees influences the development of cognition among learners. They communicate and influence each other in the process of learning (Qureshi & Stormyhr, 2012).

The ways learners learn, gain and process information can be explained by using two theories which are information processing theory and social learning theory (Lyttle, 2011). The information processing theory gives emphasis to the brain to process new data and retain the information for future use. Data can be retrieved from the memory when it is needed and it can also be integrated to process new solutions. On the other hand, the social learning theory emphasises on learners observing, imitating and learning from others in a peer-tutor relationship. Based on the premise of this theory, educators prefer to use peer tutoring as a method in which more knowledgeable students can lead their peers in the learning process. Furthermore, the process of socialisation is important in learning and changing the learners’ mindset towards learning.

Peer tutoring enables students to learn more meaningfully (Lyttle, 2011). When a tutor teaches others what he or she has learned, the process helps to reinforce the tutor’s own learning. The more knowledgeable tutor will serve as a role model and provides motivation for their tutees. Their learning may become more fun and interesting especially if they have forged a close friendship with each other.

In the case of simulation learning that encompasses activities requiring learners to interact and use critical thinking skills to make decisions, social cognitive theory can be used to shade insights into the learning process (Burke & Mancuso, 2012). This theory describes learning as a process that is affected by intellectual, behavioural and environmental factors. These three factors are inter-connected and capable of exerting reciprocal influence over each other in the learning process as well as learners (Bandura, 1991). Learners not only master the content of learning but also make conscious effort to do self-reflection and take responsibility for one’s own learning to master new skills and knowledge. As learners interact with each other, they not only imitate and model, but also stimulate the cognitive growth of each other and sharpen their decision-making skills.

Findings from previous research

There is a significant amount of literature which promotes peer tutoring (Bergen & Han-fu, 2012; Joseph, 2009; Higgins, 2004; Potter, 1997). Peers can provide individual attention and assistance to one another. Thus, they can motivate one another and peer tutoring is beneficial for both tutor and tutees in helping to improve the academic performance and attitudes of students (Ramasamy, 2004). Research has also shown that students who are engaged in collaborative learning process not only develop a better understanding of the content of learning but also develop various skills such as critical thinking, communication and interpersonal relationship skills (Chaves, Baker, Chaves, & Fisher, 2006).

Chen and Liu (2011) conducted a research on a peer tutoring programme in an institution of higher education in Taiwan. Their semi-structured interview results showed that both tutors and tutees benefited from the
programme. They gained confidence, knowledge, interpersonal relations and communication abilities through the tutoring process.

In addition, Qureshi and Stormyr (2012) designed a peer tutoring model to be used in Norway. Their initial survey showed that peer tutoring is a viable model. It was supported by students reporting a positive feedback regarding the use of group dynamics and peer-tutoring as suitable teaching methods in higher education.

Riley and Anderson (2006) also explored the effects of cooperative learning on cognitive outcomes in a web-based distance education course at the graduate level. Findings indicated that learners were more engaged with the material when they participated in group learning. In addition, learning improved in group activities as compared to independent learning activities.

Based on the literature review discussed earlier, peer tutoring is viable in promoting learning among students and the educational benefits of peer tutoring are evident. Unfortunately, most of those studies were carried out outside Malaysia. There is a lack of local research involving the use of peer tutoring in performing simulation-based tasks in the teaching of English. Therefore, the researchers would like to investigate the impact of using peer tutoring among Malaysian students in this study.

**Methodology**

20 Diploma in Business Administration students with mixed ability in English formed 4 case study groups, namely, Groups 1, 2, 3 and 4 in this study. The 4 tutors for each group who were Lem, Guan, Bill and Chor were chosen based on their best proficiency in English within the group they were placed in. Furthermore, they were agreeable in becoming tutors in their groups. There were 4 tutees in each group.

Group 1 consisted of Lem, Woon, Tee, Heng and Yong while Group 2 comprised of Guan, Foong, Ling, Choi and Choo. Bill, Cheng, Hoo, Wan and Kum formed Group 3 while Group 4 consisted of Chor, Wayne, Tong, Ong and Kang. The tutors assisted the tutees in performing 4 simulation-based tasks which were adapted from Ur (1997).

**Task 1**

The first task, “Stranded on an Island”, required the tutees to imagine being shipwrecked on an island. They had to select 5 out of 10 items listed out. The 10 items consisted of a knife, a radio, a torch, a compass, a rope matches, canned food, water, signal flares and first aid kit.

**Task 2**

The second task, “Choosing an Heir or Heiress”, involved the tutees in choosing a candidate out of 5 candidates who were Muthu, Kok, Adam, Halim and Kelly to inherit the property of a deceased rich man. Information on the candidates’ diverse background was provided to help the students in the decision making.

**Task 3**

The tutees had to solve problems in the third task, “May I Solve Your Problem?” Each group was given a family problem to solve. The problems were on financial constraint, boy-girl relationship and friendship.

**Task 4**

The final task was, “Whom Should We Release?” in which the tutees had to choose a criminal out of 5 criminals to release due to the problem of overcrowding in the prison. The criminals were Anne, Rahman, Samsaran, Salina and Wai Peng. Information on the criminals’ crimes and family background were provided to the tutees to help them in their decision making.

Each task involved discussion among the students which would eventually result in consensus reached on the final decision made by the group. In addition, they were required to provide their rationales for the decision made. The respective groups spent 45 minutes in discussing each task. Later, the groups were given 15 minutes to present their final decision to their class.
The instructor also had a debriefing session with the tutors after every lesson in order to boost their confidence. This action was taken because some of the tutors, Guan, Bill and Chor constantly sought the instructor’s assistance during the initial peer-tutoring sessions because they were uncertain if they were playing their respective roles appropriately.

**Data Collection**

The peer-tutoring sessions were video-taped to facilitate observations to be carried out. In addition, both the tutors and tutees were interviewed and they wrote diary entries describing their experiences. The different research methods provided the triangulation of data needed for this study.

**Findings**

**Benefits Derived**

The observations, interviews and diary entries revealed some advantages gained by both tutors and tutees in the course of peer tutoring. Firstly, the benefits gained by the tutors were assisting tutees in their learning process, improving their communication skills, experiencing heighten decision making skills and fostering development of character and social skills. Secondly, the tutees gained much in receiving knowledge, increasing motivation, refining their critical thinking, honing oral presentation skills and experiencing a stress-free learning environment. The first part of this section focuses on the perspectives of the tutors while the second part centres on the perspectives of the tutees on the positive impact of peer tutoring.

**Tutors’ Perspectives**

**Learning Process**

A number of researchers have found out that peer tutoring promotes learning (Clarkson & Luca, 2002; Oates, Paterson, Reilly & Statham, 2005). Similarly, all of the tutors in this study stressed that they had learned much while tutoring their friends. Lem and Guan explained through their diary entries that they improved on their research skills when making preparations to guide their tutees in the simulations.

Furthermore, Lem and Chor concurred through their diary entries and interviews that they also learned how to lead a discussion. Their leadership improved in the course of the peer tutoring. Consequently, they became better tutors than before.

In addition, Guan and Chor elaborated through their interviews that being tutors enabled them to improve on their vocabulary. It was due to the opportunity they had in using English to interact with their tutees. Simultaneously, they learned new English words from one another in the sessions.

Bill admitted through his diary entry that he learned about the different mindsets that his tutees had. He could understand their arguments when he was able to see the different angles they were focussing on through their explanations. The situation made him more receptive towards their contribution of ideas.

**Communication Skills**

3 of the tutors, Lem, Bill and Guan described the tutoring experience as providing them with the opportunity to improve their communication skills. Lem through his diary entry and interview explained that he learned how to communicate effectively in presenting his ideas to his friends while Guan in his diary entry stated that all of them in the group could interact well and share their opinions freely with one another. It was also observed that the tutees seemed to enjoy the sessions and were busy making notes during their discussions.

**Decision Making**

According to the tutors, tutoring others helped to heighten their decision making skills. Bill claimed in his diary entry that he became more focussed when making decisions. It was due to his heavy responsibility as a tutor that he was able to guide his tutees in making decisions in an organised manner. The tutees were observed to be answering prompting questions from Bill which assisted them in thinking logically.

Furthermore, Chor noted in his diary entry and interviews that he was able to make logical and matured decisions through the sessions. It was made possible through the input provided by his tutees. In addition, it was...
observed that his group produced the best decisions in class for their second, third and fourth tasks. Chor and his tutees were also observed as very interested in the tasks, participated actively and filtered through one another’s ideas eagerly during their discussions.

Lem through his diary entry and interview sessions elaborated that he was trained on how to make good decisions by summarising and focussing on pertinent issues in a situation. Through this, he was capable of thinking logically and rationally. It was also observed that his group seemed enthusiastic about the tasks and had the initiative to produce creative solutions in all of the simulations.

**Character-Building**

According to the tutors, peer tutoring helped them to form positive characteristics. Lem realised that he had improved in two distinct areas which were becoming more determined to achieve his goals and fostering good leadership behaviour. He explained through his diary entry and interview that he became an organised tutor by providing steps to his tutees on how to perform their tasks successfully. It was observed that he photographed the PowerPoint slides of the tasks and saved them in his laptop to make it accessible for his group for easy reference. Furthermore, he added his own research notes to the slides to help facilitate the discussions of tasks. It was observed that his tutees appreciated his efforts and were very attentive to him during the sessions.

In addition, Guan explained through his diary entry that he became aware of the consequences of misbehaviour through the sessions. It might be due to the nature of the second and fourth tasks which involved discussions on some candidates with criminal records. The importance of moral behaviour was emphasised and the tutees were not in favour of condoning bad behaviour. Therefore, they did not select candidates with serious offences to inherit money (Task 2) or to be released from prison (Task 4). Guan’s group was also observed to take their tasks seriously and attempted to perform the tasks well.

**Social Skills**

The tutors’ diary entries and interviews revealed that the tutors were of the opinion that their social skills improved tremendously through their role as tutors. Firstly, Lem acknowledged that the team playing skills were very visible during their discussions. They attempted to reach consensus in their decision making peaceably. Whenever there were disagreements, they would discuss the ideas patiently and rationally with one another.

Secondly, Lem, Bill, Chor and Guan also found themselves becoming open and approachable towards their tutees. Due to the close bond of friendship formed, they became closer to their tutees than before. They were helpful and willing to spend time explaining complex information to their tutees when the latter failed to understand it. It was also evident that all of the groups were participating actively in their tasks and they were enjoying their time of interaction with one another.

**Tutees’ Perspectives**

**Knowledge**

All of the groups admitted through their diary entries and interviews that they had gained much knowledge from the peer tutoring. Groups 1 and 2 explained that they learned many new words from their group members. It was observed that the tutors would patiently explain the meanings of difficult words to their tutees. The tutors used the dictionary stored in their mobile telephones when they did not know the meanings themselves. The tutors even resorted to using Chinese (Mandarin), to help them further explain words which the tutees failed to comprehend.

Groups 2, 3 and 4 gained knowledge in other areas, too. They were regarding the law of inheritance in Malaysia, counselling skills, interpreting situations and basic survival skills if they were shipwrecked. Most of the input was provided by their tutors who had carried out research beforehand to equip themselves with deep knowledge in guiding their tutees. This enables their tutees to perform the assigned tasks. Consequently, the tutees were appreciative of their tutors’ efforts in teaching them.

**Motivation**

All the groups claimed they were highly motivated to attend the lessons. The findings from the diary entries and interviews showed that they were interested in coming for the peer-tutoring sessions and were excited in
performing the simulation-based tasks. Furthermore, the presence of their group members and the cooperation among them made them confident in completing the tasks successfully. In short, they found the sessions fun and enjoyable for they had to analyse different simulations for every session.

**Critical Thinking**

Peer tutoring can promote critical thinking among learners (Bell, 1991; Shamir, Zion & Spector Levi, 2008). The findings from this study also support this opinion. From the diary entries and interviews of all groups, it was found that the tutees experienced a positive change in their way of thinking. They were systematic and were trained to think logically and rationally when performing the simulation-based tasks.

The information provided in each task was categorised, analysed and interpreted thoroughly. Moreover, their tutors trained them to be calm, positive and determined in seeking solutions to the problems presented. The researchers had also observed that the quality of the tutees’ decisions and the rationale for them had also improved significantly through the peer-tutoring sessions.

**Oral Presentation Skills**

Interestingly, the tutees admitted that they had improved on their oral presentation skills during the sessions even though the tutors were more involved than them in presenting information. According to the findings obtained from the diary entries and interviews, the tutees described themselves as becoming more confident in presenting their ideas orally. They believed that their public speaking skills improved due to the experience gained in explaining and defending their points.

In addition, they had become persuasive speakers when convincing their friends to accept their ideas. Their arguments were also strengthened through much help from their friends. The assistance comprised of having to provide clear explanations and examples to their friends when they were posed with questions. It even included allowing their friends to assist them in clarifying themselves whenever they were unable to do it. This concurs with the view provided by Brookfield and Preskill (1999):

> Through discussion, we can help students grapple with the difficulties of trying to communicate ideas and meanings not immediately clear to others. Discussions can be a training ground in which people learn the importance of giving examples to illustrate complex propositions. (p. 26)

**Stress-Free Environment**

The tutees were satisfied with the peer-tutoring sessions because they created a stress-free learning environment for them. It is similar with the view shared by some researchers that group discussions create an environment conducive to learning and foster learners’ positive response towards the subject materials they are learning (Fantuzzo, Riggio, Conelly & Dimeff, 1989; Kulik & Kulik, 1979). Likewise, many of the tutees in this study stated in their diary entries and interviews that they were excited in attending the lessons. It was due to the comfortable situation created for learning. Furthermore, they found their peers friendly and they could interact with them easily.

In addition, they explained that they had the courage to ask their tutors’ questions whenever they were unable to comprehend the information. They were able to pose their enquiries more frequently than in a normal classroom. Due to the lack of anxiety among the learners, they, too, were able to discuss effectively. It was observed that many of the tutees were finding the peer-tutoring sessions interesting. They were joking happily with their friends and there was not much inhibition among them.

**CONCLUSIONS**

The use of peer tutoring in performing simulation-based tasks was deemed as effective by both the tutors and tutees in this study. The benefits gained by the former were helping tutees in their learning, improving their communication skills, enhancing their decision making skills and aiding in the development of character and social skills. Furthermore, the advantages gained by the tutees were gaining knowledge, promoting motivation, sharpening their critical thinking, improving their oral presentation and experiencing a stress-free learning environment.
However, the importance of the instructor’s debriefing sessions with the tutors could not be undermined. It was only through those sessions that the tutors could share their difficulties with the instructor and solve problems which they encountered. Therefore, the tutors’ confidence could be boosted and hence, the quality of the peer-tutoring sessions could be improved.

References


Educating Managers for Sustainable Forestry: The Sarawak Experience

Hugh Bigsby
Lincoln University
New Zealand

Abstract

Forest management is becoming increasingly complex as forest industries in the tropics move towards sustainable management practices and the need to meet multiple objectives from their forestry activities. Forest and logging managers are now being called on to deal not only with profitable forest operations, but as well, to deal with difficult environmental and social issues, and take their organizations through forest certification. As a result, developing the appropriate skills to successfully manage a logging operation that meet the goals of sustainable forestry has become an important requirement for managers in the forest sector. To meet the skill needs of logging managers in Sarawak, the Sarawak Timber Association and Lincoln University in New Zealand have developed an innovative postgraduate degree for managers in the logging industry. The degree consists of 18 subjects offered by Lincoln University that cover all aspects of sustainable forest management, including silviculture, forest planning, harvesting, timber processing and utilization, economics, non-wood forest products and community use, conflict resolution and forest certification. The degree is designed for working managers with all subjects being offered in a modular structure of intensive one-week block courses where students attend a mix of lectures and field exercises in Sarawak. Between the intensive block courses students use an extensive set of written and online course materials that will be used for self-study or completing projects. The subjects are taught using a mixture of Lincoln University lecturers and local Sarawak forestry experts. The degree takes 24 months to complete, with 9 subjects being offered each year. The first cohort of the degree has now finished and the second cohort is underway. The paper outlines the structure of the degree and analyses the results of this type of programme in terms of developing the necessary skill mix for the timber industry in Sarawak.

Why the need for management training?

The rationale for management training arises from the push towards sustainable forest management (SFM) in Sarawak, and the desire of many logging companies to carry out SFM and to undergo forest certification. Forest and logging managers were increasingly being called on to deal not only with profitable forest operations, but as well, to deal with difficult environmental and social issues. At the same time, the legal framework for SFM was also undergoing change, including requirements for training of those working in the forest industry and the need for environmental impact assessment.

To be successful in this new environment, the management of logging companies required professional forest managers who could phase in new technologies, techniques and experiences that are required for SFM. To accomplish this, the current management of forest companies needed to upgrade their skills and knowledge. As a result of these pressures, the Sarawak Timber Association (STA), under then General Manager Barney Chan, and the Forest Department Sarawak (FDS), under then Director Cheong Ek Choon, started exploring options for training. The result of their search was an agreement with Lincoln University, based in Christchurch, New Zealand, to develop and deliver what is now called the Postgraduate Diploma in Applied Science (Sustainable Tropical Forest Management) in Sarawak.

Why a Postgraduate Diploma?

There are two key reasons why a postgraduate diploma was chosen as the preferred training platform. The first is that the focus is on managers in the forest industry. These individuals range from university graduates in a wide range of non-forestry disciplines to those with forestry degrees, as well as many without degrees who have
become managers through experience in the industry. As such, the interest is primarily in increasing the forestry skill levels of professionals with a non-forestry background who are managing logging businesses. The second reason is the level of understanding that graduates are expected to have of SFM. This includes an understanding of the application of key theories and concepts related to SFM, familiarity with the tools and techniques used for forest management and an understanding of how all these elements work together to produce sustainable forestry.

Given the background of managers and the level knowledge that they now require to carry out their jobs, a postgraduate diploma was chosen as the preferred training platform. In essence, the Postgraduate Diploma is a forestry equivalent of a Master of Business Administration (MBA). In the same way that an MBA is structured to provide a commerce background to non-commerce graduates, the Postgraduate Diploma does the same for non-forestry graduates. In addition, a degree also indicates that a particular level of competence has been achieved by graduates.

**What Do Managers Need to Know?**

Sustainable Forest Management (SFM) requires addressing the broad range of environmental, social and economic factors that are relevant to tropical logging. The subjects in the degree cover core concepts and knowledge that are generic to all types of forestry and resource management, as well as specific topics related to mixed-age forest management and selective harvesting in the tropics, forestry in Sarawak, and wood utilisation. The content of the Postgraduate Diploma has been packaged as six subjects, the standard format of a postgraduate diploma at Lincoln University. The subjects provide the background necessary to answer the key questions related to SFM (Figure 1).

The development of specific course content and delivery of the degree has been a collaborative effort between STA and Lincoln University. Both organisations worked closely, along with Sarawak government and international agencies, to develop the programme. The content was developed with wide consultation of government staff and industry in Sarawak, and in consultation with international agencies, such as FAO and ITTO. The Postgraduate Diploma has an advisory board that has representatives from ITTO, FAO, Malaysian Timber Certification Council, World Wildlife Fund, Wildlife Conservation Society, Sarawak Forest Department, the University of Malaysia Sarawak and University of Malaysia Sabah. The degree is awarded by Lincoln University and is governed by New Zealand university regulations.

![Figure 1. Structure of the Postgraduate Diploma Around Answering Key Questions](image-url)
How is the Postgraduate Diploma Delivered?

The teaching format of the Postgraduate Diploma is designed around two key constraints. The first is the profile of the typical student that was expected (Figure 2). These are largely mature students with many years experience in the industry, most without formal forestry training, many without a first degree, and for those with a degree, many years since they were last in the classroom. This meant that there were generally weak study and writing skills. The second constraint was that students needed to be able to continue working largely on a full time basis. This includes students who worked in remote logging camps where travel to attend courses would be difficult. This meant that the programme had to be structured around part time study with block teaching periods.

The first constraint has been dealt with by running a one-week Orientation to University Studies before the formal subjects start. During this week students are introduced to the concepts important to critical thinking, literature review and academic writing, and have a chance to put these concepts into practice. All students are required to have their own laptop, and in many cases this will be the first time they have used them so time is also spent orienting students to basic computer skills and common applications.

The second constraint has been addressed by using a mix of teaching approaches, including intensive teaching weeks (Figure 3) and the use of distance education techniques (Figure 4). All subjects are offered in the form of five-day, intensive teaching blocks, with a minimum of three weeks back at work between each teaching block. Students are given course materials that will be used during the block courses and for self-study at other times. Students also have access to online resources from the library at Lincoln University, as well as access to the STA Resource Centre.
Teaching Strategy

The degree is applied in its approach and students are expected to have the opportunity to put all the material covered into practice. A typical teaching week will involve a mix of lectures, tutorials, group work, field trips and projects (Figure 5). Since students come from a variety of backgrounds and experience, they are organised into groups that mix a range of skills, ensuring that everyone has the opportunity to share their experience and to draw on the experience of others. These groups form the basis of discussions and presentations in class, and collection and analysis of data. In some cases the entire week will be based in a logging camp or forest area.

To reinforce the applied approach, each teaching block has a project that is based on the main theme being covered that week. The project provides a focus for applying new skills and that mirrors what would be done in a work environment.
The preferred number of students for this type of delivery and for the activities that are required is about 20. For the first two cohorts of students, three subjects or nine teaching blocks were offered each year, so that the degree took two years to complete. The six-subject structure has been modified for the third cohort to provide greater delivery flexibility. Based on the one-week delivery format, there are now 18 subjects corresponding to each one-week teaching module.

Subject Examiners ( coordinators) are from Lincoln University, and teaching is done by staff from New Zealand and local Sarawak experts (roughly 50/50). Most of the local teaching staff are drawn from the Sarawak Forestry Department and Sarawak Forestry Corporation. Teaching is usually based at Wisma STA in Kuching, however given that this is an applied degree, there are many field exercises and some teaching weeks are in other locations such as Bako, Bintulu or logging camps.

Currently STA, through its education subsidiary STA Training Sdn. Bhd., provides an indirect 100% scholarship to all students for tuition by covering all costs and charging no fees to students. Individual companies cover the cost of travel and accommodation for students for the study weeks, as well some costs related to field tours.

**What are the Benefits of the Postgraduate Diploma?**

Based on surveys of students there are a number of benefits for individuals who take the degree and for the companies that employ them. From a personal perspective, one of the key benefits is for those who had many years of experience, but who did not previously have a degree. For these graduates, the degree has resulted in promotions and increases in salary (Table 1). For those with less experience, the degree has helped them move into a new job that they would not previously been able to do. For all graduates, there were new writing, analysis and computer skills that increased their ability to carry out their jobs.

<table>
<thead>
<tr>
<th>Forest industry experience (Years)</th>
<th>First Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 (N=5)</td>
<td>None (N=3)</td>
</tr>
<tr>
<td>5-10 (N=4)</td>
<td>Non-forestry (N=8)</td>
</tr>
<tr>
<td>11-15 (N=1)</td>
<td>Forestry (N=5)</td>
</tr>
<tr>
<td>15-20 (N=1)</td>
<td></td>
</tr>
<tr>
<td>&gt;20 (N=5)</td>
<td></td>
</tr>
</tbody>
</table>

I have been promoted because I have completed the PG Dip (STFM).

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The PG Dip (STFM) is a factor that has helped me gain a promotion.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>I received an increase in salary because I have completed the PG Dip (STFM).</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>I have been able to move into a new job that previously I would not be able to do.</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>I have gained writing skills.</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>I have gained analytical skills.</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>I have gained computer skills.</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>There was no personal benefit.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1 Personal benefits

There is no expectation that there will be an immediate and dramatic impact on the industry from degree, and there is an understanding that this is part of a long process of training that will eventually be part of much larger changes in the industry. However, there are immediate returns to employers in terms of employee performance. Among the key outcomes are in increase in efficiency because of a greater overall understanding of forestry processes, a better understanding of techniques relevant particular jobs, and an ability to organise staff more productively (Table 2). For those in more senior positions, they identified that they had been able to modify practices to save money, and in some cases earn more money. Many students also identified that they were better able to communicate with other company staff and with outside agencies or organisations.
What are the benefits to your employer from you taking the PG Dip (STFM)? Check as many as apply.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Responses</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am able to work more efficiently because I have a better overall understanding of forestry.</td>
<td>15</td>
<td>88%</td>
</tr>
<tr>
<td>I am able to work more efficiently because I have a better understanding of techniques that are relevant to my job.</td>
<td>11</td>
<td>65%</td>
</tr>
<tr>
<td>I am able to modify how we do things to save money.</td>
<td>10</td>
<td>59%</td>
</tr>
<tr>
<td>I am able to organise staff to work more productively.</td>
<td>10</td>
<td>59%</td>
</tr>
<tr>
<td>I am able to communicate with other company staff more easily.</td>
<td>10</td>
<td>59%</td>
</tr>
<tr>
<td>I am able to communicate with Government staff more easily.</td>
<td>9</td>
<td>53%</td>
</tr>
<tr>
<td>I am able to modify how we do things to earn more money.</td>
<td>5</td>
<td>29%</td>
</tr>
<tr>
<td>There is no benefit to my employer.</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 2 Benefits to Employers

Importantly, most graduates also indicated that they were better prepared to take on leadership roles in their companies, particularly in emerging areas related to SFM (Table 3). This includes reduced impact logging, forest certification, forest planning and working with local communities. In other words, these companies now have staff who can help guide them towards SFM and certification.

<table>
<thead>
<tr>
<th>Area</th>
<th>Unable to Work or Lead</th>
<th>Work Under a Manager</th>
<th>Lead by Close Assistance</th>
<th>Lead by Occasional Assistance</th>
<th>Able to Lead</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced/Low Impact Logging</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Forest Certification</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Forest Planning</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Work with local communities</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Environmental Impact Assessment</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Profitability of logging</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 3 Ability to work or lead work in an area for a company

The Future

The objective of the Postgraduate Diploma is to provide a comprehensive applied background in SFM and forest certification for managers working in the tropical forest industry in Sarawak. While the ultimate success of the degree will take many years to determine, there are a number of short-term successes that include economic benefits to businesses, and an increase in the knowledge and skill base in SFM in Sarawak.

The format of the degree, incorporating a mix of intensive teaching and distance learning methods for managers in the industry may be a model for other parts of the tropical forest industry, and help deal with a common complaint about understanding and buy-in to SFM practices by managers and executives in forestry companies.
Abstract

This paper is based on a preliminary research aimed at determining the relationship between students’ learning style and their academic performance in Accounting. The data for this research is obtained from a sample size of 60 students, in their second semester of the Certificate in Business Studies (Accounting), in an institution of higher learning in Penang, Malaysia. The students were asked to complete a set of questionnaire aimed at gauging their learning style. The questionnaire is then used to determine each student’s learning style, so that they could be categorized as visual learners, auditory learners or kinesthetic learners. The data collected were analysed using IBM SPSS. These data were then matched with the grades obtained by the students for their final examinations, for ABFA1063 Recording Financial Transactions (the first Accounting unit studied by these Certificate students). This study attempts to show the existence as well as the extent of correlation between students’ learning style to their academic performance in Accounting. This paper will provide a concrete analysis on the relationship between students’ learning style and their academic achievement in Accounting. This study attempts to measure correlation btw students’ learning style and academic performance as well as provides a concrete analysis on the relationship.

Keywords : Student learning styles, academic performance, visual, auditory, kinesthetic

Introduction

It is common knowledge that the academic performance of a student is dependent upon various factors. One such factor is the student’s learning style. Learning style refers to different approaches or ways of learning. Learning style is also defined as the approaches in which students begin to concentrate on, process, internalize and retain new as well as difficult information and skills (Dunn & Dunn, 1993, p12). Learning style also refers to the methods/approaches used that allow students to do something that he/she could not do previously (Honey & Mumford, 1992). Entwistle (1981) discovered that students do not learn in the same way and individual learning styles do exist.

There is a wealth of contradicting literature on the relationships between learning styles and academic performance of students. However, there is a lack of such research and literature in the Malaysian accounting education landscape. Therefore, the objective of this research is to determine if students can indeed be categorized into distinctive learning styles, based on the VAK model. Do individual learning styles exist? If students do have individual learning styles, do these learning styles actually affect their academic performance, and how?

Literature Review

Over the years, various models on the theory of learning styles have been proposed by learned researchers such as the Learning Style Inventory by Kolb (1976), the Experiential Learning Model by Rogers (1994), the Multiple Intelligence Model by Gardner (1983) as well as the VAK model by Fleming (1992).

The VAK model was pioneered by Neil Fleming. The model divides students learning styles into three broad categories. The VAK model categorizes students as visual learners, auditory learners as well as kinesthetic learners. According to Fleming, students generally prefer one particular learning style, of the three available...
learning styles. However, there could be a small group of students who may fall into more than one category, simultaneously. Some students may exhibit different learning styles for different subjects.

Visual learners learn through seeing and observing. They tend to sit at the front of the class, to avoid other visual distractions from other students as well as from outside the class. They learn best when presented with pictures, graphs, charts, diagrams, illustrated notes, videos, mind maps, flipcharts and handouts. These learners pay a lot of attention to the teacher’s body language and facial expression to fully grasp the subject matter. In addition, these learners take down detailed and structured notes in every lesson. Visual learners are very prone to use a multitude of colours and sketches/images in their notes. These learners usually like to study in quiet places, away from noise and distractions.

Auditory learners learn through listening. They learn best from lectures, speeches/seminars, discussions, forums, debates, presentations, tapes, reading aloud as well as talking and listening to others. These learners pay a lot of attention to the speaker’s tone, pitch, speed as well as nuances. Auditory learners usually study by reading out loud from their books and notes as well as by creating musical jingles and mnemonics to aid memorization. Kinesthetic learners learn through a hands-on approach. These learners actively explore and practice using the materials provided to them. These learners learn best from experiments, field trips, active explorations, projects, assignments as well as role play. However, kinesthetic learners need to take frequent study breaks as these learners can easily get bored and lose focus. Kinesthetic learners do their revision best by doing additional reading and research as well as by trying lots of practice questions and exercises.

Although, students generally favour one particular learning style over the others, they would still be able to process information presented to them in a format that is different from their usual learning style. For instance, a student who is a visual learner may be able to process information presented to him using the auditory style; albeit less effectively.

Garcia & Hughes (2000), through a series of tests conducted on a group of Spanish students, demonstrated that learning styles are a definite predictor of academic performance. The ‘meshing hypothesis’ advocates that teachers who assess their students’ learning styles and prepare relevant as well as suitable teaching materials, would produce significantly better academic results (Sprenger 2003). Tailoring learning materials according to the student’s learning style also helps the student learn more easily and effectively (Prabhakar & Swapna, 2009). This point is further stressed by Rasimah et.al (2008) who concluded that irrespective of the measurement instrument used, learning style definitely plays an important role in the academic performance of a student.

However, there is also significant literature which highlight that the ‘meshing hypothesis’ is invalid Pashler et.al.(2008). In addition, Henry (2007) stresses that the human brain processes data by uniting one’s senses as well as by exploiting the immense interconnectivity of the nerves in the brains. As such, it is pointless to categorize learners into mutually independent learning style categories. Castro & Peck (2005) found no correlation between a student’s preferred learning style and his/her grades in college.

Given the contrasting views contributed by researchers around the world, this study aims at determining if there is indeed a preferred learning style for each individual student, in the Malaysian accounting education environment. Further, this research aims to determine if there is a relationship between a student’s learning style and his/her academic performance in accounting, in the Malaysian higher education scenario.

Methodology

A learning style inventory questionnaire containing 13 items was created, based on several online self-assessment tests that mirror the VAK model. The questionnaire was administered on a group of 30 students from the Certificate in Business Studies –Accounting (CBA) programme as well as on another group of 30 students from the Certificate in Business Studies -Business Administration (CBB) programme. Both groups of randomly selected students were enrolled in their first accounting subject in their 4-semester program. It was also ensured that all 60 students have studied “Prinsip Akaun”(Principle of Account) during their secondary education. This is to ensure that the accounting knowledge of each student is at a similar level. Each group of students had equal numbers of males and females (15 males and 15 females in each group).This was done to make sure that the gender factor did not affect their performance in the accounting examination.

The 60 students were asked to complete a set of 13 questions that would indicate whether they are visual, auditory or kinesthetic learners. Their learning style was then matched with their final examination mark for the accounting unit ABFA1063 Recording Financial Transactions. Their coursework marks were not included in
this study because their coursework included an assignment which was done in groups of 4 students each. ABFA 1063 Recording Financial Transactions is a unit that is related to basic bookkeeping entries as well as the preparation of simple financial statements. In addition, the syllabus of this unit closely mirrors the materials covered in Prinsip Akaun in Form 4 (at secondary school).

![Diagram 1: Conceptual framework](image)

**Results and Discussion**

Diagram 2 below provides a detailed breakdown of the percentage of students in the CBA course, categorized according to their learning style. 23 students (76%) of the CBA students are visual learners, 3 students (11%) of them are auditory learners while 4 students (13%) of them are kinesthetic learners. The results indicate that there are individual learning styles amongst CBA students where visual learners clearly outnumber auditory as well as kinesthetic learners.

![Diagram 2: CBA students categorized according to their learning styles](image)

Diagram 3 shows the number of students from the CBB programme, grouped according to their learning style. 11 students (37%) are visual learners, 6 students (20%) are auditory learners while 13 students (43%) are...
kinesthetic learners. Again, there are clearly established individual learning styles amongst the CBB students. However, the majority of CBB students are kinesthetic learners, followed by an almost equal number of visual numbers. The number of auditory learners is still small.

Diagram 3  
CBB students categorized according to their learning styles.

The results in Diagrams 2 and 3 show that it is possible to group students according to their individual learning styles. This proves that individual learning styles do exist. However, it is interesting to note that the majority of CBA students are visual learners while the majority of CBB students are kinesthetic learners. Diagram 4 provides a further breakdown of the learning styles of CBA students, according to gender. There are more female visual learners compared to males. However, male students are more inclined to be auditory learners and/or kinesthetic learners.

Diagram 4  
Composition of CBA students’ learning styles categorized by gender

Diagram 5 details the types of learners in the CBB programme, according to their gender. Female visual learners outnumber male visual learners. However, male auditory and kinesthetic learners outnumber their female counterparts.
Sub-theme C: Methodologies & Strategies In Learning, Teaching & Assessment

Diagram 5  Composition of CBB students’ learning styles categorized by gender

The results in Diagrams 4 and 5 clearly depict a particular pattern; females are more prone to be visual learners while males are more inclined to be auditory and/or kinesthetic learners.

Diagram 6 shows the final examination marks obtained by the three different groups of learners, for CBA and CBB students respectively. One obvious trend is that visual learners from both the CBA and CBB programmes tend to get better scores in their accounting examination. 14 visual learners from CBA (47%) scored an ‘A’ while 8 visual learners from CBB (27%) scored an ‘A’.

On the other hand, auditory learners and kinesthetic learners mostly scored an average mark of ‘B’. Very few auditory learners and kinesthetic learners from CBA and CBB scored an ‘A’ or a ‘C’.

<table>
<thead>
<tr>
<th>LEARNING STYLE</th>
<th>GRADE(CBA)</th>
<th>GRADE(CBB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>VISUAL</td>
<td>14</td>
<td>47%</td>
</tr>
<tr>
<td>AUDITORY</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>KINESTHETIC</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>

Diagram 6  Final examination marks of students from CBA course and CBB course, categorized according to their learning style.

The results in Diagram 6 validates to a certain extent that the learning style of a student does have an impact on their academic performance in accounting. Visual learners seem to exhibit much better performance while auditory and kinesthetic learners seem to exhibit a more average performance, in accounting. The above observation is true for both programmes; CBA and CBB.

Conclusion

The results of this study clearly show that students do actually have their own learning style with which they are comfortable with. The study further proves that students do indeed utilize that learning style for their studies and revision. In addition, this research validates that the visual learning style has a more positive impact on the students’ academic performance in accounting, while the auditory and kinesthetic learning styles have a lesser impact on the students’ academic performance in accounting. Therefore, it is worthwhile for an accounting educator to tailor his/her teaching materials to suit the learning style(s) of his/her students, as one possible way to boost their academic performance. For example, teaching materials for a group of visual learners could consist of mind maps, flowcharts, diagrams as well as multi-coloured notes peppered with illustrations. On the other hand, auditory and kinesthetic learners could be gently prodded to consider the visual style of learning since it produces better academic results for accounting. By doing so, accounting educators may be able to
expose students to a ‘new’ learning style, different from that which they are used to, in order to help enhance their learning experience. The results of this research may also be invaluable for authors of accounting books and study materials, who may want to consider including more ‘visual elements’ into their books and study materials. These ‘visual elements’ may help maximize the students’ absorption of the materials presented in the books and study materials. The results of this study may also be used by students who find accounting to be a difficult subject. These students may opt to use visual learning methods to help boost their results in accounting examinations.

Limitations of the Research

However, this research is not without its limitations. The first limitation is the accuracy of the identification of the student’s learning style. The learning style of each student was identified based on his/her responses in the questionnaire distributed to them. There are several issues to be pondered. How much do students really know of themselves? Were the answers to the questionnaire based on their moods and emotions as well as their level of interest in accounting? Were the students truthful in providing the answers? For example, in a study conducted in an institution of higher learning in Europe, students were assessed about their learning styles on two separate occasions. Only 44% of the students had the same learning style classification on both occasions (Kratzig & Arbuthnott, 2007).

Another limitation is that the students’ learning style has been matched to a single accounting examination result. This single match may not be sufficient to establish a strong correlation and conclusion about the relationship between a student’s learning style and his/her academic performance. As such, it is intended that this research will be continued by following up with the same respondents’ accounting results in subsequent semesters until they graduate.

Suggestions and Recommendations for Further Research

The VAK model is not only suited for use in the educational context. Rather, this model can be applied in diverse areas such as sports coaching, workplace dynamics and even personal relationships (Fleming, 1992). Further research could be done to incorporate the VAK model of learning in these as well as other relevant areas. Similarly, in the field of education, the VAK model could be tested on various subjects such as languages, mathematics, science and economics among others.

References

Adapting An Argumentation Framework For Online Discourse Analysis: A Knowledge Building Approach

Shaun Nykvist
Queensland University of Technology, Australia
s.nykvist@qut.edu.au

Abstract

The use of online tools to support teaching and learning is now commonplace within educational institutions, with many of these institutions mandating or strongly encouraging the use of a blended learning approach to teaching and learning. Consequently, these institutions generally adopt a learning management system (LMS), with a fixed set of collaborative tools, in the belief that effective teaching and learning approaches will be used, to allow students to build knowledge. While some studies into the use of an LMS’s still identify continued didactic approaches to teaching and learning, the focus of this paper is on the ability of collaborative tools such as discussion forums, to build knowledge. In the context of science education, argumentation is touted as playing an important role in this process of knowledge building. However, there is limited research into argumentation in other domains using online discussion and a blended learning approach. This paper describes a study, using design research, which adapts a framework for argumentation that can be applied to other domains. In particular it will focus on an adapted social argumentation schema to identify argument in a discussion forum of N=16 participants in a secondary High School.

Keywords: Argumentation, knowledge building, asynchronous communication, discourse analysis

Introduction

There is an increased expectation for all educators to use ICT, and more specifically, the Internet, to support students’ development of knowledge building in all curriculum areas (sometimes also referred to as e-learning). ICT has been said to have “the potential to extend student learning capabilities, engaging them in understanding concepts and processes in areas of learning and facilitating change in learning, thinking and teaching” (Curriculum Corporation, 2006, p. 2). However, the mere introduction of the computer and, more recently, the plethora of online applications that exist and have been touted as essential for the attainment of educational goals, does not automatically ensure that learning will occur. Consequently, this emergent use of online tools in education has resulted in new pedagogical approaches to teaching and learning, sometimes with mixed results.

Initially, the idea of using e-learning systems, such as an LMS, was focused around the ability to connect with external and distance education students and provide greater access and flexibility to these students (Allen & Seamen, 2007; Mason, 2004). However, e-learning has now become a core component of the education experience for many students in education and an ever-increasing combination of face-to-face (F2F) learning and e-learning is now occurring (Borden, 2011). This learning, referred to as blended learning, uses technology to expand the physical boundaries of the classroom, providing access to learning content and resources and enhancing the instructor’s ability to receive feedback on learners’ progress (Klein, Noe & Wang, 2006).

In creating this blended learning environment in education, an LMS (such as Blackboard© or Moodle) is often used to access inbuilt collaboration tools such as blogs, wiki’s and discussion forums. These tools, often referred to as web 2.0 or e-learning 2.0 tools, are most common to these environments and touted as having the ability to empower educators to facilitate a sense of community through the possible interactions that could occur in these environments. Consequently, it is this buoyant relationship between the use of Internet collaboration tools and people that has the potential to create powerful online learning communities (Hartnett, Battacharya, & Dron, 2007). However, there is an expectation that students will be engaged and that knowledge building will also occur in these environments.
While there is continuing research in this area, the frameworks previously used for analysing data do not lend themselves readily to the typical blended learning environment that is so typical of secondary schools. This paper discusses a study that adapts a social argumentation schema that can be applied to online discourse in domains other than science education. It is based on a study of N=16 senior secondary school students studying families. Each of the participants (N=16) are female and were known to each other through everyday classes. The study was limited to the use of a discussion forum that can only be accessed during school hours. The study described here, specifically investigated the discourse of 6 discrete forums where argument was encouraged. It then used a social argumentation schema, based on the work of Duschl et al. (1999), and an adapted social argumentation schema to code the discourse in the online discussion forums.

**Argumentation in Learning**

The study of argumentation in education is not new and there is an extensive literature base pertaining to it, particularly in science education (Jiménez-Aleixandre & Erduran, 2008; Duschl & Ellenbogen, 2001; Duschl & Osborne, 2002; Osborne et al., 2001). Supporting this notion further, Richmond and Striley (1996) claimed that learning not only involves the internal development of student conceptions but also the external process of discussion and argument. They suggested that the interaction between students with one another and with the teacher plays a vital role in the process of students’ learning. Within this context, Johnson and Johnson (2004) also noted the value of structuring learning activities in the form of argument and suggested that this results in students sharing ideas with one another and working together to find a common solution. Consequently, this discourse allows students to engage in learning through a community of practice, such as that which can potentially be formed through the use of collaborative tools in a blended learning environment.

Argumentation can be viewed as either a product or process. As a product, arguments are viewed as objects to be constructed or critiqued. As a process, argument focuses on the social interaction which occurs when two or more people are having an argument (O’Keefe, 1982). Argument is evident in either an individual sense (rhetorical) or a social sense (dialogical) (Kuhn, 1993b). In an individual sense, argument refers to a person conversing, speaking or writing about a topic in a reasoned way whereas argument in a social sense refers to the “dialogue between two or more people who hold opposing views” (Kuhn, 1993b, p. 323). Argumentation can further be seen as a language genre (Duschl & Osborne, 2002) and, as such, holds much credence in education theory. Education, particularly in the sciences and applied sciences, can be seen as a social activity where theories are challenged and refuted (Kuhn, 1993a; Newton et al., 1999; Osborne et al., 2001). An individual’s understanding of scientific phenomena advances through the thought processes and discussions that occur between individuals.

Argument, in everyday terms, involves individuals proposing an explanation for an event, providing evidence to substantiate their explanation and then evaluating the feedback being given by the other individual/s involved in the argument. After comparing the feedback or evidence presented to them in the argument, the individual then modifies or abandons their original explanation. It is through this interaction with the outside world and other people that students develop their understanding and knowledge of the world (Newton et al., 1999; Osborne et al., 2001).

Current research pertaining to the discourse which occurs in the classroom has relied on the analytical form of argument (Duschl et al., 1999; Kuhn, 1993b) or “Toulmin’s model for practical arguments” (Duschl et al., 1999, p. 4). Duschl et al., (1999) claimed that the emphasis of these studies is on the structural features of argument and proposed that an alternative to this is the use of “dialog logic to the analysis argumentation discourse” (p. 4). As noted, there are a number of extant argumentation schemes and it has been suggested that:

Argumentation schemes are forms of argument that capture stereotypical patterns of human reasoning, especially defeasible ones like argument from expert opinion, that have proved troublesome to view deductively or inductively. ... It is argued that defeasible argumentation schemes require both a systematic and a pragmatic justification, of a kind that can only be provided by the case study method of collecting key examples of arguments of the types traditionally classified as fallacies, and subjecting them to comparative examination and analysis. By this method, postulated structures for schemes can be formulated as hypotheses to solve three kinds of problems: (1) how to classify such arguments into different types, (2) how to identify their premises and conclusions, and (3) how to formulate the critical questions used to evaluate each type of argument. (Walton, 2005, p. 1)

**An adapted argumentation framework**

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During the analysis stage of the study, the focus of this paper, the first coding of messages in the forum transcripts followed Duschl et al.’s (1999) social argumentation schema which was developed from the seminal work of Walton (1996). The categories of this schema used as the first framework of analysis in this study, summarised in Table 1, are: (a) sign, (b) commitment, (c) position to know, (d) expert opinion, (e) evidence to hypothesis, (f) correlation to cause, (g) cause to effect, (h) consequences, and (i) analogy.

<table>
<thead>
<tr>
<th>Argument Form</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sign</td>
<td>Reference to spoken or written claims are used to infer the existence of a</td>
</tr>
<tr>
<td></td>
<td>property or occurrence of an event.</td>
</tr>
<tr>
<td>Commitment</td>
<td>A claims that B is, or should be, committed to a particular position on an</td>
</tr>
<tr>
<td></td>
<td>issue.</td>
</tr>
<tr>
<td>Position to know</td>
<td>A has reason to presume B has knowledge of or access to information that A</td>
</tr>
<tr>
<td></td>
<td>does not have, thus when B gives an opinion, A treats it as true/false</td>
</tr>
<tr>
<td>Expert opinion</td>
<td>Reference to an expert source external to the given information</td>
</tr>
<tr>
<td>Evidence to hypothesis</td>
<td>Reference to premises followed by a conclusion</td>
</tr>
<tr>
<td>Correlation to cause</td>
<td>Infers a causal connection between two events from a premise describing a</td>
</tr>
<tr>
<td></td>
<td>positive correlation between them.</td>
</tr>
<tr>
<td>Cause to effect</td>
<td>Reference to premises that are casually linked to a non-controversial effect.</td>
</tr>
<tr>
<td>Consequences</td>
<td>Practical reasoning in which a policy or course of action is</td>
</tr>
<tr>
<td></td>
<td>supported/rejected because the consequences will be good/bad.</td>
</tr>
<tr>
<td>Analogy</td>
<td>Used to argue from one case that is said to be similar to another.</td>
</tr>
</tbody>
</table>

Table 1 Summary of social argumentation schema (Duschl et al., 1999)

However, the need for a second coding soon emerged from the data when the analysis process began. It quickly became apparent that the selected schema (Duschl et al., 1996), while, indicating formal measures of argumentation, was not effective in identifying the more informal, personal, and sometimes idiosyncratic “arguments” being expressed by the subjects in this study. This is a key issue that becomes more apparent as we move away from studies of adults and focus on High school students.

The subjects, all adolescent girls known to each other, were communicating in a natural, almost conversational, way and the formal schema, arguably designed for more adult and stylised interactions, was not entirely effective in its analysis. It was also apparent that identifying evidence of knowledge building would be difficult through the selected schema. A second more customised framework was therefore required. It was drawn from:
1. the nature of the topic under review and the teaching approach adopted;
2. the aim of knowledge building; and,
3. instances in the data itself.

The topic under review, as noted, was ‘families’ and students were encouraged, sometimes provoked (academic controversy), to challenge their own personally-held views or to draw – and reflect (after Harasim, 1993) - upon their own experience. Knowledge building is effectively a constructivist process of building from what is known to broader more informed understandings. Put simply, a coding schema was needed which took the importance of lived experience from the students’ perspective into account. This coding schema has seven elements which are summarised in Table 2.

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptor</th>
<th>Brief explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>Opinion or statement</td>
<td>A generally short response which offers little explanation or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reasoning</td>
</tr>
<tr>
<td>SPE</td>
<td>Statement supported with</td>
<td>Response is supported by personal experience indicating a personal</td>
</tr>
<tr>
<td></td>
<td>personal experience</td>
<td>association with the original discussion stimulus.</td>
</tr>
<tr>
<td>Ev</td>
<td>Evidence not including</td>
<td>Response is supported by an external source of reference or</td>
</tr>
<tr>
<td></td>
<td>personal experience</td>
<td>external evidence.</td>
</tr>
<tr>
<td>R</td>
<td>Recommendation</td>
<td>Response draws upon other responses and recommends a course of action.</td>
</tr>
<tr>
<td>Q</td>
<td>Question</td>
<td>A question is asked in relation to the forum topic.</td>
</tr>
<tr>
<td>N/R</td>
<td>Not Relevant</td>
<td>An “off-task” response unconnected to, or disconnected from, the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>topic under discussion.</td>
</tr>
<tr>
<td>SM</td>
<td>Subliminal message</td>
<td>Response has tangential links to the forum topic and may open further</td>
</tr>
<tr>
<td></td>
<td></td>
<td>discussion.</td>
</tr>
</tbody>
</table>

Table 2 Summary of customised schema
The elements of the customised schema developed for this study emerged from the collected data with substantiation from content analysis (Garrison et al., 2001; Henri, 1992; Jeong, 2003). The content analysis used in these previous studies was used as a classification framework to explore such factors as problem solving, critical thinking or cognitive presence. In this study the schema developed is used to explore knowledge building through argumentation. The customised schema identifies seven elements which can be similarly reduced and linked to the regrouped categories of the argumentation schema developed by Duschl et al., (1996). These were request for information, expert opinion, inference and analogy.

In the customised schema, the element of opinion (O) could be associated with the category request for information, while the elements statement supported with personal experience (SPE) and evidence not including personal experience (Ev) could be associated with the category of expert opinion. The element of recommendation (R) in the customised schema is similarly associated with the Duschl et al. (1996) category of inference.

The first four elements of the customised schema, that is, Opinion or statement [O], Statement supported with personal experience [SPE], Evidence not including personal experience [Ev] and Recommendation [R], could be classed as cognitive elements as they represent a simple continuum of cognitive processes similar to the shift from declarative to procedural knowledge (after Anderson, 1976) and from elementary clarification to the application of strategies in Henri’s (1992) cognitive skills hierarchy.

This continuum is shown diagrammatically in Figure 1 with the arrow indicating the shift from a simple autonomic, usually autobiographical or egocentric, response through to one which shows that knowledge has been internalised to the point it forms the basis of informed opinion (through making a considered recommendation for action to others). This conceptual shift is used as the measurement of knowledge building.

These first four elements, however, critically, retain a loose connection with elements of the selected social argumentation schema (Duschl et al., 1996). That is:

1. **Opinion or statement** [O] is similar to the element of **Sign** in its simplicity and inferential connection to the topic being discussed.
2. **Statement supported with personal experience** [SPE] is complementary with the element of **Evidence to hypothesis** and more broadly to the grouped category of **Inference**.
3. **Evidence not including personal experience** [Ev] is complementary with the element of **Expert Opinion** in that an external source is used to support the argument being presented.
4. **Recommendation** [R] is complementary with the element of **Consequences** because of the “practical reasoning” employed.

The remaining three elements, that is, (1) Question [Q], (2) Not Relevant [N/R], and (3) Subliminal message [SM], can similarly be grouped together as argument forms. They describe the form, rather than the implicit cognitive process, of the message.
A **question** [Q] is interesting in that this form features strongly in discourse analysis and in some frameworks (see, for example, Garrison et al., 2001). For adolescents to ask a question of others is an indication of disequilibration, the necessary precursory step to knowledge building. Put more simply, this is a “knowing what they do not know.” Questioning fits, complementarily, with the broad grouping of *request for information* in the social argumentation schema (Duschl et al., 1996) also selected as the more formal analysis framework in this study.

An **N/R message** is akin to that described as either a social cue (Henri, 1992) or acknowledgment (Bonk, Supplee, Angeli & East, 1998). It was described by Henri (1992) as “a statement *not related* to formal content of subject matter” (p. 126, emphasis added) and generally taken to be an indicator (absence) of learner focus. These responses might include “a self-introduction, expression of feeling (e.g., ‘I’m feeling great…’), greeting, (e.g., ‘Hi everyone’), closure (e.g., ‘That’s it for now’), jokes, the use of symbolic icons (e.g., ☺), and compliments to others” (Angeli et al., 1998, pp. 10-11). For the purposes of the study, see Table 2, it is simply an “off-task” response not dissimilar to equivalent student chatter in a face-to-face class and often precursory to more focussed interaction.

A **subliminal message** [SM] is one where students “hedge around” a topic or do not make an explicit connection to the topic being discussed. The term *subliminal* was chosen to identify the fact that there are sometimes hidden messages within the response.

The messages in the forum transcripts could represent any one of the seven categories in the customised schema or combination of them. For example, where an opinion [O], a statement with personal experience [SPE] and evidence [Ev] was identified, the multiple codes of O, SPE, Ev was applied. Similarly, as the latter three elements are argument forms, they are frequently combined with the four former cognitive elements.

**Discussion & Conclusion**

The two schemas used in the analysis of the forums in this study offered three measurements of the use of authoritative sources. These are:

1. **Expert Opinion** – social argumentation schema (Duschl et al., 1996); and,
2. **Statement supported with personal experience** [SPE] and **Evidence not including personal experience** [Ev] from the customised schema developed for this study (see Table 2).

There is little difference between *expert opinion* and *evidence* with the latter offering slightly broader criteria for the definition of sources. Table 3 presents the instances of these measurements across the six forums.

<table>
<thead>
<tr>
<th>Element</th>
<th>Forum [eligible messages$^1$]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Expert Opinion</td>
<td>(n=19)</td>
</tr>
<tr>
<td>EV</td>
<td>(n=24)</td>
</tr>
<tr>
<td>SPE</td>
<td>(n=83)</td>
</tr>
</tbody>
</table>

Notes to Table
1. Eligible messages are those posted by students. Researcher messages were eliminated from this analysis.

Table 3 Instances of elements of authoritative sources in Forums 1-6

Table 3 shows the expected parity between the measurement of Expert Opinion and Evidence. The exceptions are in Forums 4 and 6 where the broader interpretation of evidence in the customised schema allowed more inclusion of teacher input. There were instances – counted in both measures - where students drew on evidence which they had located on their own rather than making use of the resources provided by the researcher.

The relatively high instance of SPE, that is where personal experience is counted as evidence, is of particular interest in identifying knowledge building in this study. It can be interpreted in terms of ratios as:
1. Forum 1 – with 10 instances in 14 eligible messages (ratio of 0.71:1)
2. Forum 2 – with 17 instances in 30 eligible messages (ratio of 0.57:1);
3. Forum 3 – with 17 instances in 19 eligible messages (ratio of 0.89:1);
4. Forum 4 – with 16 instances in 21 eligible messages (ratio of 0.76:1);
5. Forum 5 – with 14 instances in 23 eligible messages (ratio of 0.61:1);
6. Forum 6 – with 9 instances in 23 eligible messages (ratio of 0.39:1).

In summary, it would appear that there was limited instance of evidence in terms of external reference in the forums in this study. This is consonant with findings in previous studies (see, for example, Angeli et al., 1998). This is somewhat surprising, however, given the emphasis placed on evidence by the researcher and teacher in the off-line scaffolding provided in this study.

The heightened incidence of personal evidence is not unexpected in a population of adolescents and also in a discussion of families where lived experience, by definition, will be “personal.” Other explanations for this may be:

1. this incidence of heightened SPE could be an indicator of knowledge building in the sense that personalised knowledge is deep rather than surface level; and,
2. the habituated practices of schooling may also have provided a scaffold, rather than a barrier, in this instance. The relative ease with which students shared their own experiences may be a characteristic of the blended learning environment in which all participants knew each other and felt secure. The presence of their teacher and the trust given to the researcher may have also been a factor in this.

There are limitations to this study based on a small student sample of all females who can only access the discussion forum during school hours, however, the study does identify an adapted framework for argumentation that can be applied to this particular study. Argumentation was identified in the discussion forums through the use of the customised argumentation schema. However, further research, that identifies knowledge building through argument, in a teaching and learning environment that uses collaborative tools, outside of the domain of science, is needed. The adapted argumentation schema (based on the work of Duschl et al., 1999) is presented here as a model that has the potential to be used across other domains of study.

References


What Is The Relationship Between Culture And Learning Style And Their Impact On Classroom Participation?

Nicola Millard
School of Hospitality and Events
University College Birmingham, United Kingdom
n.millard@ucb.ac.uk

Abstract

This article examines national culture and its relationship with pedagogy in order to establish whether learning style is influenced by national culture and the impact this may have on education in a university classroom setting. Previous research on learning styles across cultures is dominated by research on Chinese students or by categorising cultures by "East" and "West". Learning styles’ models incorporate numerous explanations of learning approaches (Coffield et al. 2004); however, amongst the theory, the consideration of ‘culture’ is lacking. Furthermore, only one cultural model makes explicit links between culture and learning styles. The aim of the research objectives was to critically assess the relationship between national culture and learning styles and to investigate to what extent culture and learning style impacted on classroom participation. Mixed methods were applied to the research. The study surveyed 97 Higher Education (HE) students via questionnaires and 4 lecturers via a questionnaire and interview respectively. The findings indicated all students believed participation in class as important. The findings also demonstrated the most preferred learning method for all students was a mixture of lecture input and student participation. The research concluded that, whilst it is possible to make some associations between classroom participation, or the lack of it, with culture and culturally defined education systems, it is difficult to categorically make similar links between the preferred learning methods of students from a range of cultures.

Keywords: learning style; culture; classroom participation,

Introduction

It has been suggested that learning style is intrinsically linked to culture (Charlesworth, 2008; De Vita, 2001; Eaves, 2009; Manikutty et al, 2007; Strang, 2010; Valiente, 2008). However, previous studies that have made such links have generally focused on only two cultures (Charlesworth, 2008; Eaves, 2009, Valiente, 2008) or have made assumptions and conclusions based on mass groupings of cultures (De Vita, 2001). Such studies frequently refer to the ‘East’ and ‘West’ (Charlesworth, 2008; Valiente, 2008) or Confucian and Socratic Heritage Societies (Hofstede 1980, 2005) and so fail to differentiate between the different cultures represented within each society; and most of the conclusions on Eastern and CHC (Confucian Heritage Culture) learning styles are based on Chinese students. Furthermore, there is considerable emphasis on the association of classroom participation and learning style, the inference being that a lack of participation presents issues for lecturers teaching international students.

A further concern is that although there is an abundance of literature on learning styles, with some seventy one associated models (Coffield et al, 2004), arguably many of these overlap and are versions of the leading models, whilst the terms “learning style”, “learning strategies” and “learning approaches” are used synonymously across the models. Of note, Manikutty et al, (2007, p.72) are one of the very few that differentiate between “learning styles” (related to the work of Kolb, 1984 and Honey and Mumford, 1992) as a general preference for modes of learning and “learning approaches” (from the work of Entwistle and Wilson, 1970 and Entwistle, Hanley and Hounsell, 1979) as situation specific competencies required for effective learning. Entwistleletal’s (1979) framework is one of only two that considers learning solely within the realms of HE, identifying three categories of learning: “deep, surface apathetic and strategic” which are claimed to be directly influenced by culture and the learning environment (Manikuttyet al, 2007, p.77).
Further still, although there are comparatively few models of culture, there are considerable dimensions across these models (Morden, 1999). Hofstede’s (1986) 4D model of cultural difference is the only one to make explicit links between culture and learning styles and approaches.

Along with the complexity of learning styles, the literature has found it hard to define culture, with synonymous uses of the terms “nation” and “culture”, as well as confusion between the distinction of “country” and “nation” (Clark, Gospel and Montgomery, 1999).

Consequently, this research will seek to clarify the relationship between “culture” and “learning”, examining students from a range of cultures along with lecture perceptions and by doing so, it will offer further contribution to previous research in the field.

National Culture and Learning Styles

Endres (2002, p.171) argued that there is a need for increased emphasis for the consideration of cultural difference in education and goes on to state that “in order to teach students appropriately, attention to cultural difference is crucial”. However, research that has been undertaken on national culture and learning is limited to a few countries at a time and very generalised between Western and Eastern cultures with most of the conclusions on Eastern cultures and learning styles based upon Chinese students.

Hofstede (1986) differentiated characteristics of the student/teacher relationship across the four dimensions of the 4D Model of Cultural Differences. According to Signorini et al (2009, p.253) Hofstede (1986) claims that at “all social interactions, including those in higher education are culturally mediated”. Furthermore, within Hofstede’s (1986) cultural dimensions it is recognised that countries with small power distance (SPD) and long power distance (LPD) are characterised through teacher-student relations, for example, teacher-student relations in the UK (SPD) versus China (LPD).

Indeed, these findings are supported by Valiente (2008) who identified that within East and South Asia the predominance of memorization is linked to hierarchical respect and people in senior roles whose job it is to transmit knowledge are seen as gurus in their field. Herewith, the surface apathetic approach (Entwistle et al., 1979) could be likened to the memory approach recognised by Valiente (2008) as being that which is prevalent in East and South Asia (Barron and Arcodia, 2002). Furthermore the surface apathetic approach is characterised by fear of failure and as a result Manikutty et al (2007) suggested that learners generally grasp only a shallow appreciation and comprehension of the subject.

De Vita (2001) examined culture and learning style arguing that culture is critical in shaping learning styles. Further studies seem to offer similar findings. Barron and Watson (2006) suggested that UK students are more likely to demonstrate a tendency toward an Activist style of learning whereas students studying in South East Asian universities prefer Reflector learning. Charlesworth (2008) also attempted to make conclusions on the relationship between culture and learning styles based on Honey and Mumford’s (1992) four learning styles, however, the study was limited to France (the “West”) and China and Indonesia (the “East”). Charlesworth (2008) suggested that the West shows a higher preference to Activists compared to the East whose preference sits within the Reflector style. Manikutty et al (2007) argued that although learning and studying takes place in an individual way, it is embedded into culture and therefore reveals a universal precedent on a general basis. Therefore, it is possible to identify links between Hofstede’s (1980, 1986, 2002) cultural dimensions and learning approaches.

On the other hand, Volet (1999) contested that learning style cannot be explicitly linked to an independent variable such as culture and Barron and Arcodia (2002) argued that the accuracy of generalisations of cultural orientation is somewhat erroneous. It seems that the arguments supporting culture as a compelling element of learning style differentiate mainly between two heritage cultures and that these are too broad for assigning a sole approach to learning. In particular, Signorini et al (2009) note that Hofstede’s (1980, 2005) categorisations tend to lean towards two large groups – Confucian and Socratic societies.

The process of acculturation has been mentioned by several authors (Charlesworth, 2008; Kennedy, 2005; Rodrigues, 2005; Valiente, 2006) in terms of developing and adjusting learning styles. Indeed, Barron and Watson (2006, p.370) maintained that this acculturation process does in fact occur, noting that international students change when they attend a Western University and shift learning styles with a tendency to display a preference for activist learning styles. Rodrigues (2005) and Kennedy (2010) also make this summation and
Charlesworth (2007) whose study concluded that the convergence of the learning style of international students over the course of four semesters echoed this.

This leads to the first two research questions to be examined: What is the relationship between culture and learning style? Does exposure to different teaching approaches influence learning style?

**Classroom participation**

Valiente (2008, p.81) highlighted that Western academic styles use questioning as a way of measuring learning and maintaining attention, and goes on to indicate that CHC learners may consider the concept of answering questions before information and knowledge has been shared as confusing and “premature pursuit”. Furthermore, where Western style student centred teaching encourages questions from students, CHCs see this as bad manners and lack of respect similarly to Hofstede’s (1980, 1986, 2005) cultural dimensions relating to Power Distance and hierarchy. Interaction and student centred activities are often viewed as chaotic (Valiente, 2008).

It seems that the differences in learning styles highlight a concern amongst the literature regarding participation within the classroom. De Vita (2001) identified that teachers often face difficulties in delivering a well prepared lecture when the group is culturally diverse. This is put down to traditional instruction being at odds to students with different approaches to learning. Valiente (2008, p.75) stated “international students tend to feel overwhelmed and anxious in a learning environment and teaching style which disregard and greatly deviate from their previous learning experience”. Similarly, Sweeney et al (2007). Identified that international students are fearful of group participation due to possible communication difficulties.

Furthermore, it is important to consider that students who do not have English as a first language may take twice as long to read than home students (McLean and Ransom 2005 and Schmitt 2005, cited in Valiente 2008) and the time taken to process messages and take notes will be greater for students whom English is not their first language (De Vita, 2000). With this in mind De Vita (2000, p.171) suggested that one way presentations should be integrated with student centred activities defending that this approach avoids “language fatigue” and helps to maintain attention spans.

This leads to the third research question: Do culture and learning style impact upon classroom participation?

**Methodology**

A mixed methods design was deployed in order to strengthen findings when dealing with social phenomena (Bryman, 2008; Burke and Onwuegbusie, 2004). Brewerton and Millward (2009) also recognised that qualitative research can supplement and enrich quantitative research. Furthermore, Brewerton and Millward (2009, p.12) maintained that “quantitative approaches to studying culture are concerned with identifying its predictive power”. However, the sole use of quantitative data limits wider insight into issues. Indeed, Brewerton and Millward (2009, p.12) also advocated that “qualitative approaches to culture seek to characterise its rich emergent and multi-dimensional nature using ethnographic approaches”.

Therefore questionnaires were chosen as an appropriate method of collecting data (Brewerton and Millward, 2009; Denscombe, 2007) from 97 students at University College Birmingham (UCB). The questionnaires were designed to collect data on preferred styles of learning and establish the students Views on classroom participation.

In addition to questionnaires, and as a secondary tool, semi-structured interviews were carried out with four lecturers at UCB in order to gain qualitative comment on the quantitative data produced from the student questionnaires. This was particularly important for considering classroom participation and the notion of convergence of learning styles.

**Results, Analysis and Discussion**

Due to the wide spread and low proportion of some nationalities, some were grouped for analysis. It is argued that the groupings (fig. 1) allow for a wider analysis than that which is identified from the literature above, where the cultures are split into East and West (Charlesworth, 2008; Valiente, 2008) or classed as Confucian Heritage and Socratic Heritage Cultures (Hofstede 1980, 2005).
1. The Irish respondent was included with the British as they are fully educated in the UK. The Russian, Latvian, Estonian and Lithuanian respondents were clustered together and are referred to as the Baltic States. The Bangladeshi and Indian respondents are referred to as South Asia. Bulgaria and Romania are referred to as Eastern Europe. Spain, Portugal and Italy are referred to as Western European.

**What is the relationship between culture and learning style?**

84% of all students indicated that learning style is inherent from cultural background with “agree” being the mode (39% of the responses). Chinese students showed the highest response (50%). Despite this, 66% of Eastern European students and 40% of British students disagreed more than agreed, disagreed or strongly disagreed that learning style is inherent from cultural background. This is compared to 9% of Chinese students, 28% of Baltic State students and no students from Malaysia, Korea, Western Europe or South Asia.

Although there are pockets of nationalities that lean towards the view of Volet (1999) that learning cannot be linked to culture, the overall beliefs seem to support the suggestions made by De Vita (2001), Manikutty et al (2007), Rodrigues (2005) and Valiente (2008) that learning style is embedded in culture. Moreover, in addition, all four lecturers agreed that cultural influences have an impact on learning approaches especially in terms of the educational system. That said, the results of the most preferred learning methods as identified by the students, and discussed below, do not mirror this.

**Most preferred learning methods**

The results showed little agreement to the findings within the literature that Eastern cultures prefer a reflector style of learning (Barron and Watson, 2006), directed learning (Eaves, 2009), memorisation (Charlesworth, 2008; Valiente 2008) and even surface apathetic learning (Entwistle et al, 1979). These results demonstrate the greatest deviation from suggestions within the literature regarding the cultural segregation of learning styles and therefore, the suggestion that learning styles are directly influenced by culture remains questionable and the research question inconclusive.

The mode response (43%) indicated students preferred a mixture of learning approaches combining lecture input and student activities including the students’ own contribution to class feedback and discussion. Indeed, Chinese, British and South Asian students all indicated the highest preference this. Korean, Malaysian and Eastern European student responses showed no overall preference. Western European responses indicated a preference to reading to learn and the Baltic State student responses were split evenly between reading and lecture input. These results show a diverse preference across all cultures. Therefore the distribution of preferred methods and the mix within cultures demonstrates that it is difficult to ascertain a direct link between culture and preferred learning method.

Therefore, although students will be more familiar with their own cultural educational systems, it seems the findings suggest they do not necessarily prefer those methods of teaching and learning in practice. There is certainly no clear split between Confucian and Socratic Heritage Cultures as suggested by Barron and Arcodia (2002), Charlesworth (2008) and Valiente (2008).
Does exposure to different teaching approaches influence learning style?

All students found the approach to teaching/lecturing different from their previous (school/college) education with a mean response of 4.8 (on a scale of 1-6). British and Chinese who were educated in the UK at degree level had the lowest mean score of 3.8 compared with 4.3 for the Chinese students who had not previously studied in the UK. The respondents who rated 2 were either British or postgraduate students who had completed their degree in the UK indicating that there is a possibility that they have adjusted to the approach to teaching and therefore correlating with the suggestions made by Barron and Watson (2006), Charlesworth (2007), Kennedy (2010) and Rodrigues (2005) that international students demonstrate convergence over time. Indeed, one lecturer identified that Kolb's (1996) learning cycle is applicable to all cultures, which reflects the view of De Vita (2001) regarding evaluation and analysis being developed overtime, as students develop their participation skills. However, a larger sample size is necessary to test the convergence hypothesis as it does not reflect the findings within classroom participation below.

Echoing the words of Pheiffer et al (2005), three lecturers each identified that the students are in fact “learning to learn” as they adjust to a different approach to teaching. In a similar vein to Barron and Arcodia (2002), Charlesworth (2008) and Valiente (2008), two lecturers suggested that students from Chinese and Indian cultures are used to simply listening to the teacher and classroom discussions and activities are not usual practice. Furthermore, two lecturers pointed out that the lecture is not an ideal form of learning and that it is difficult with large numbers to gain interaction and participation from the whole class whatever nationality they may be.

Do culture and learning style impact upon classroom participation?

The majority (89%) of students recognised the importance of contributing to questions and discussions in classes. Furthermore, 79% were of the opinion that contributing to discussions and answering questions in class is linked to culture, with “agree” being the mode (41% of the responses).

Despite the majority agreement of the importance of students participating in class, only 45% of British, 40% of Western European and 57% of South Asian responses given indicated these cultures were more comfortable with contributing to class discussions or answering open questions that have been posed by the lecturer. This compares to merely 20% of Chinese students and no Malaysian or Korean students. In the main, the East/West divide is evident in willingness to participate, however it remains uncertain due to the results of the South Asian students and therefore does not fully correlate to Hofstede’s (1986) suggestions on SPD or LPD cultures.

In regard to participation, the responses from Chinese (35%), Malaysian (48%) and students from the Baltic States (30%) indicated that their primary reason for not participating in class was due to a fear of being wrong. 66% of responses from Korean students indicated they were worried about being embarrassed. These findings agree with the suggestions made by Sweeney et al (2007) and Valiente (2008) that lack of participation is due to feelings of fear and anxiousness. Furthermore 66% of South Asians and 42% of British students who are not comfortable with participating also gave this answer, suggesting this type of surface apathetic learning (Entwistle et al, 1979) is a concern across all cultures.

The second highest reason for not participating in class amongst Chinese students (22%) was due to needing time to translate and understand the information mirroring the considerations made by McLean and Ransom (2005) and Schmitt (2005) (cited by Valiente, 2008) regarding the time taken to process words in a foreign language. Indeed, three of the lecturers each recognised that overseas students are constantly translating and may need more time to consider and prepare a response. Subsequently, one lecturer suggested: “Learning styles are blamed for the lack of interaction and willingness to engage and interact. It is often an excuse for poor teaching, poor preparation or lack of experience. In relation to this, another lecturer acknowledged the importance of using teaching methods that are engaging and that “make people tick”, indicating the inclusion of a range of teaching methods is crucial to include all learners and that it is impossible to assume that students from a particular culture who are familiar with certain types of delivery will in turn all have the same preference for learning. Therefore there is no clear indication that lack of participation is linked to learning style, more so to teaching approaches.
Conclusions and Recommendations

This ethnographically based research assessed the impact of national culture on learning styles, with consideration for classroom participation, acculturation processes and the impact of multicultural classes on individual learning experiences.

The impact of national culture on learning approaches

In answer to research question one, the findings infer that culture does not have a direct impact on learning style. The preferred learning approach for both home and overseas students was a mixture of lecture input and student activities including students’ contribution to class feedback and discussion. The distribution of preferred learning approaches was uneven across all cultures and for this reason the conclusions are that it is not possible to explicitly link culture and learning style. It seems that there is confusion between students’ experiences of previous teaching approaches which may be culturally influenced and preferred learning approaches. Teaching approaches that have been inflicted because of culturally informed education systems don’t necessarily characterise learning styles and approaches. Consequently, it is essential that assumptions are not made on an individual’s learning style solely based on culture. With regards to research question two, in line with the findings, it is recommended that a range of approaches are applied ensuring differentiation is addressed at all levels across all cultures.

The relationship between culture, learning approach and classroom participation

As for research question three it is concluded that there is some affiliation between culture and classroom participation. However, the study considered participation in a lecture environment (which is questioned in terms of conduciveness to participation) and, therefore, further research is recommended that attempts to measure participation according to class size and type of activities. Furthermore, there is no indication from the findings that preferred learning approaches and styles are concurrent to classroom participation.

The research established that all students find the approach to teaching somewhat different to their secondary and previous educational experience (regardless of culture). With this in mind, combined with the conclusions on classroom participation it is recommended that it is perhaps the lecturers that need to consider their approach and be mindful just delete this phrase that it is largely impossible to gain participation from everyone in a lecture or classroom, regardless of nationality.

Research constraints

Although a relatively small sample size was used in a case study of one HEI, it was nevertheless adequate to test the theories and generate conclusions as it incorporated a wider cross section of cultures. It is also acknowledged that some cultures and nationalities within the sample were less well represented than others. However, within the context of this research, as it related to one particular HEI, the proportions are representative of the distribution of cultures within the classes within the school of hospitality. Therefore the results may be used to inform future wider scale research.

Concluding statement

From this ethnographical and pedagogic study, it is evident that students from different cultures have different educational experiences prior to studying in the UK and it has been established that these experiences influence classroom participation and the acculturation process. That said, this does not necessarily affect students’ preferred learning methods. Students from all cultures innately possess varying cognitive abilities which must be considered by lecturers when preparing teaching sessions. Indeed, the topic of learning styles is a real caveat. The fact that there are seventy one known models of learning style (Coffield et al, 2004) suggests that learning styles is an arduous subject riddled with idiosyncrasies and clouded with questions and uncertainties. To then couple this with culture and claim learning style is inherent to culture is flawed. Although several authors have attempted to make the links, perhaps this may explain why there is only one learning styles model that explicitly links learning style and culture. Certainly, there are links between culture and educational systems, hierarchies and classroom participation and overseas students and acculturation processes. Therefore it is crucial educationalists direct their focus in order to provide an inclusive and pedagogically sound learning experience for all cultures and learning styles.
References


Further comments:

1. The research HAS NOT established relationships as it claims to have done. For this, then statistical analysis should have been done. It is descriptive research and inferred relationship.

2. It IS NOT ethnographic research. It is entirely cross sectional. I think the researcher thinks because she is looking at ethnicity it is ethnographic!

3. Could do with expansion on the methodology i.e. type of sample, type of students etc etc.
Do The Teachers Share The Greater ‘Burden’ Of Blended Learning? : An Evaluation Of Innovative Approaches To Economics Teaching

Ian MacDonald
Department of Accounting, Economics and Finance
Faculty of Commerce
Lincoln University
ian.macdonald@lincoln.ac.nz

Nazmun N. Ratna*
Department of Accounting, Economics and Finance
Faculty of Commerce
Lincoln University
nazmun.ratna@lincoln.ac.nz

Maurice Ward
Library, Teaching and Research
Lincoln University
maurice.ward@lincoln.ac.nz

Abstract

Teachers are increasingly expected by university management to teach using flexible, blended and online teaching practices. Some teachers are intrinsically motivated to innovative, while others widespread resistance. In this paper we use the Cost-Benefit Analysis (CBA) framework to evaluate the adoption of innovative approaches for teaching two economics courses at Lincoln University. Although it is difficult to estimate the costs and benefits in dollar value, as is done in a traditional economic analysis, we argue that the CBA framework provides a rationale for adoption for individual teachers, and more importantly, a very clear policy direction for those who are tasked with shifting teaching practice across an entire faculty or institution.

Keywords: Blended Learning; Cost Benefit Analysis; Innovation; Teaching Economics

Introduction

Recently there has been a significant shift in the way teachers are expected to teach resulting from a drive for academic institutions to use flexible, blended and online teaching practices. Some of this drive has been self-motivated by a bottom-up pull from innovative teachers wishing to incorporate educational technology into their practice in an effort to improve learning outcomes. A more significant part of this drive, however, has been a top-down push from administrators wishing to increase student access and capture new markets. In the absence of very carefully crafted implementation and staff development plans, the top-down approach seems to have led to widespread resistance from teachers who are reluctant to change the way they teach.

In this paper we use the Cost-Benefit Analysis (CBA) framework to evaluate the adoption of innovative approaches for teaching two economics courses at Lincoln University. Although it is difficult to estimate the costs and benefits in dollar value, as is done in a traditional economic analysis, we argue that the CBA framework provides a rationale for adoption for individual teachers, and more importantly, a very clear policy direction for those who are tasked with shifting teaching practice across an entire faculty or institution.

The paper is organized as follows: Section II contains a brief literature review examining the issues of change management and the adoption of innovations as they relate to teaching practice. In section III we look at both
the theoretical drivers of staff resistance and openness to the adoption of new technologies and at a number of studies that empirically test the theory as it relates to teaching practice. Section III compares the online learning tools for two courses, as case studies. In section IV we evaluate the courses by applying a CBA framework. Cost is measured as the lecturer’s personal reflection on time allocation of developing online tools, and the benefits are assessed on two aspects: one, lecturer’s evaluation on perceived improvement in learning outcomes, and two, students’ perception on new learning space. Section V concludes.

Drivers of adoption of teaching innovations

A. General organisational theory

Standard ‘textbook’ theory, such as that found in Bartol et. al. (2008) suggests that resistance to change can come from both individuals within an organisation and from the organisation itself. Individual barriers to change include concerns about economic insecurity, fear of the unknown, threats to social relationships, habit, and the failure to recognise the need for change. Organisational barriers to change include structural inertia, work group inertia, threats to the existing balance of power, and a fear of repeating previously unsuccessful change efforts.

Rogers (originally 1962, see 2003 p282) argues that the most important factor determining the rate of adoption of an innovation is the degree of interpersonal communication within an organisation. Rogers classifies individuals within an organisation according to their willingness to adopt new technologies: innovators, early adopters, early majority, late majority, and laggards. Innovators and early adopters are typically younger, highly educated and self-confident risk-takers who feel secure in their opinion leadership roles. The early majority adopt technologies at a slower rate, usually after close contact with early adopters. The late majority approach innovations with a high degree of scepticism and adopt only after a critical mass of people have adopted before them. Laggards are typically older, isolated ‘traditionalists’ that show little or no respect for leadership and have an aversion to change.

Rogers identifies four other important factors for diffusion of innovation: the degree to which a new technology is seen as being better than the status quo; the compatibility of the innovation with existing skills and values; the complexity of the new technology; the ability to test and observe the innovation working.

B. Factors influencing the adoption of technology in teaching

Maguire (2005) collates the finding of thirteen papers on barriers and motivators of faculty participation in eLearning innovations. Maguire finds that uptake of online technologies is more likely when intrinsic factors such as personal motivation to use technology, job satisfaction and a feeling of self-gratification from teaching online are present. Also important are extrinsic factors such as improved tenure and promotion outcomes, recognition of efforts from administrators and peers, and opportunities to collaborate with colleagues. Inhibitors to teaching innovation include resistance to change, intimidation of technology, fears about career and job security associated with loss of intellectual property, workload, lack of technical support, and a belief that technology is not aligned with pedagogical goals.

In this paper, we look more closely at three empirical studies, those by Finley and Hartman (2004), Birch and Burnett (2009) and Orr et. al. (2009). Finlay and Hartman (2004) report on an empirical analysis of the efforts to implement an institutional change at Western Michigan University (WMU) requiring teacher-preparatory faculty to use eLearning technologies while teaching future teachers. Via interviews of key change agents within the institution, the authors find that there are three key barriers to the adoption of technology by teachers were discussed. The first identified, and empirically supported, area of concern for teachers relates to a concern about whether eLearning technologies are appropriate tools for achieving their educational goals. Finlay and Hartman comment that “there is indeed a concern about the bells and whistles approach to technology integration… while not always looking for ways to better address pedagogical concerns”.

A second key finding was in regards to the level of skill teachers have in the use of technologies. The key theme of respondents was that on-going and one-on-one professional development was critical for teacher to feel comfortable about integrating technology into their courses. Finally, the authors found that a culture of innovation supported by close networks of communication amongst faculty was very important in encouraging uptake. Even casual conversation in the hallways was seen to be extremely useful in diffusing innovations.

Birch and Burnett (2009) interviewed academics and educational designers at the University of Southern Queensland (USQ) in order to identify pedagogical, individual and institutional factors related to the adoption of eLearning technologies. The authors find that the key pedagogical factors that motivate academics to use
technology are a need to cater to diverse learning needs of students, and a desire to improve learning outcomes particularly those associated self-motivation and active learning. Interestingly, pedagogical concerns are not identified as significant inhibitors to adoption. Birch and Burnett find that concerns about workload and a lack of time are the key individual inhibitors to adoption followed by lack of reward and recognition. From an institutional perspective, Birch and Burnett find that at USQ the main barriers are the absence of a clear, program-wide strategic plan and specialised training.

Orr et. al. (2009) examine faculty perceptions concerning compensation and time, organisational change, and technical support and infrastructure at two different institutions in the University of North Carolina system (five highly experienced faculty members from each institution were interviewed). One interesting finding of the paper is that the availability of compensation for staff who attempt online teaching is not seen as a necessary motivator. Instead what is required is a strategy to ensure that academic staff members do not have to dedicate a lot of time towards course development.

Our reading of the literature suggests that, perhaps not surprisingly, there is near universal agreement with respect to the influences on uptake. However, one thing that we think, is lacking in the literature is an overarching unifying framework for the various studies. We suggest that the literature be couched in terms of costs and benefits. Simply, resistance to innovation is driven by teachers attempting to avoid incurring additional costs and adoption is driven by teachers trying to capture the benefits of innovations. Costs differ depending on an individual teacher’s skills and characteristics, the timing of adoption, the administrative infrastructure, availability of support, etc. Benefits are largely driven by pedagogical improvement but also can include reduced time spent administrating the process of teaching. Only when the benefits outweigh the costs for an individual teacher or academic programmes, adoption is likely to take place. In this paper, we provide a qualitative estimate of costs and benefits of adopting innovative approaches for two economics courses.

Case Studies on Adoption of Blended Learning: A Qualitative Measure for Cost

In this section we compare two hybrid courses: one, Managerial Economics, an intermediate microeconomics course, and two, Development Economics, a post-graduate course. The comparison is crucial as the courses differ not only in terms of level of study and course materials, but also on aspects such as class size and students’ academic background. In each section, the rationale for adoption is followed by a discussion on major online tools developed as part of blended curriculum design.

A. Case Study 1: Managerial Economics

For both the courses, the main motivation of the lecturer aligns strongly with the findings of Birch and Burnett (2009), discussed in the previous section. The analysis of student engagement by (Holley & Dobson, 2008) reports that inclusion of multimedia learning objects has contributed increased student participation. The case study covers a student group of more than 1000 students studying Marketing and/or Business under London Metropolitan University. The more relevant for our analysis is the authors’ interpretation of ‘non-traditional’ students. The authors argue that as “two-thirds of the students are mature learners, often with English as their second language”, the effectiveness of activities adopted in a traditional campus-based universities is limited for the studied student group. The student presence in Lincoln University campus has declined over the years due to the perceived distance from the city life and students’ involvement in off campus jobs. Reflecting wider trends (Farley, Jain, & Thomson, 2011), the lack of participation and engagement of students for a undergraduate microeconomics course was no exception and hence provided motivation for the lecturer to opt for blended learning. The principal aim of the lecturer was to develop a learning space that combines traditional lectures and a set of carefully designed online tasks intended to create a self-paced learning process. In this section we will discuss two learning tools adopted in the Managerial Economics course.

1. Blending face-to-face and online learning

The judicious and intentional blending of learning resources and student interactions in synchronous and asynchronous setting is increasingly evidenced by the literature as a highly successful pedagogical strategy (Dowling, Godfrey and Gyles 2003, Bryant, Kahle, & B.A. 2005, Akhras, C. 2012, Ward, De Silva, & Weil, in print). For Managerial Economics course, the blending was executed through redesigning each of the modules. Figure 1 illustrates a standard module for ECON 215, with a range of activities under blended learning framework.
Figure 1: A standard module in ECON 215: Demand

In Figure 1, the first item under module for Demand outlines the learning objectives. These objectives describe the concepts and tools of analysis the students are able to understand and use at the completion of the module. These learning objectives also provide clear guidelines for the course assessments. The next section, termed as Pre-module concept and skill check, includes two ‘self-study’ activities. It deals with the concepts taught in the previous courses, followed by a quiz that measures competence in these. These pre-lecture activities also help the lecturer to focus the entire lecture time on new topics rather than revision work. The next section includes post-lecture activities like tutorials, 'lectorials' (i.e. video of tutorial questions with a voiceover) and practice quizzes. The last section is an online interactive lesson, which offers content review opportunities with formative assessment of the student’s on-going grasp of the learning objectives of the module. All of these online activities cater for the student’s individual learning styles, provide them with formative feedback throughout the semester and consequently prepare them for final assessments.

2. Personalised Learning Space

The second tool was a set of online mathematics resources to encouraged self-directed activities. Previous iterations of the course showed a paucity in the required level of mathematical rigour among a large number of the enrolled students. In 2010, in consultation with education designers from Flexible Learning Initiative (FLI) and Teaching and Learning Services (TLS), Lincoln University, two online mathematics courses were developed: MATH001 Mathematics Refresher and MATH 003 Calculus. The students enrolled in Managerial Economics can access all the resources available in these two online courses.

Figure 2 illustrates a standard module in MATH 003, containing concept notes, interactive lessons, self-assessment quizzes and videos on Derivative of Logarithmic Function. Our aims were:

a. to introduce the basic rules of differential calculus, and
b. to enable students to apply those rules to solve problems in microeconomics.

MATH 003 has two branches of lessons to address these objectives: mathematical application and economic application. Instead of giving them zero marks for wrong answer, the lesson enables us to provide constructive feedback with links to the relevant concepts or worked examples. The question may then be represented in a different format to allow the learner to address the concept from another angle. Algebraic concepts, for instance, can be reframed as economic narratives. Students are also able to seek help from the ‘Step-by-step’ video
developed by Khan Academy. These third-party resources are enhanced with suggestions on how to integrate them with other learning activities.

Figure 2: A standard module in MATH003: Logarithmic function derivative

B. Case Study 2: Development Economics

In this section we focus on an online discussion forum for the postgraduate course. The discussion forum primarily aimed at addressing the varied academic backgrounds of the enrolled students. The students enrolled for ECON 603 are from a range of social science disciplines. Given the breadth of the content, it was essential to deliver the core economic concepts to the students who did not have formal training in economics, but are well informed about the development issues such as poverty alleviation or income inequality.

Our rationale for constructing an online discussion forum, although driven by the needs analysis, also includes the following advantages:

1. collaborative process of knowledge-building process (Akhras 2012);
2. deeper reflections (Hara 2000 in Kaur 2011, Elvis and Calvo 2006);
3. immediate application of new information (Smith 2001, in Kaur 2011)

Figure 3 shows part of a discussion forum on the topics of “challenges and prospects of rural people.” It depicts a trail of comments from two students, one from Denmark and the other from Venezuela. The lecturer has used this forum to provide constructive feedback aiming to evoke more debates/discussions. More importantly it enables the students to actively participate in group discussions, and verify their arguments outside the lecture time.
Cost Benefit Analysis: Work in Progress

At this stage we are gathering qualitative data for measuring cost and benefit for three stakeholders:

a. the lecturer who offered both the courses
b. the students enrolled to the two courses for the period of 2011-2012
c. the other courses in the Faculty of Commerce and Lincoln University.

We acknowledge that the costs and benefits differ across people and over time, depending on what stage of adoption one is at. These are also dependent on the nature and extent of professional help from education designers, programmers and others for redesigning the course and developing online resources. Although limited to two case studies, our estimation of costs and benefits discussed in this paper will provide evidence for formulating effective teaching policies for Lincoln University and beyond.

Bibliography


Maguire, L. (2005). Literature Review – Faulty Participation in Online Distance Education: Barriers and Motivators. *Online Journal of Distance Learning Administration, 8*(1).


Exploring Pedagogical Strategies for Teaching a Large (Merged) Class in Values Education 1

Wilma S. Reyes, Ph.D.
Director, Educational Policy Research and Development Center
Philippine Normal University, Philippines
reyes.ws@pnu.edu.ph or eprdc@pnu.edu.ph

June R. Dumanhug
Department Head, Department of Arts and Social Sciences
Philippine Normal University, Agusan Campus, Philippines
jrdumanhug@yahoo.com

Abstract
This study aims to identify problems in a large class and explore pedagogical strategies for teaching large (merged) classes in Values Education 1, one of the general education courses in teacher education at the Philippine Normal University. Initially, the study challenges the faculty and students in a large class exploring some pedagogical strategies that make the teaching and learning process more effective in a merged class. Utilizing an exploratory method, two classes in Values Education were merged for one semester (1st semester, Academic Year 2011-2012) to form a large class with a total of 84 students. Qualitative responses of students taken from short open-ended questionnaire, focus group and reflection papers were gathered and analysed to provide answers to the two major problems of the study: problems encountered in a large class and identification of pedagogical strategies that students find effective in learning from a large class. Reflective journals highlighted students’ learning using some pedagogical strategies.

Keywords: Pedagogical Strategies, Large Class, Teacher Education

Introduction
The Millennium Development Goal on education that targets Education for All (EFA), boys and girls alike, have increased the number of pupils in schools. Similarly, vocational training in secondary schools and expansion of higher education institutions in the countryside hastened large classes in basic education. This is the trend in a number of developing countries, but similar experience was felt by industrialized countries during the early stages of their development (Valerien, 1991).

In the Philippines, the young population structure and the Millennium Development Goal (MDG) contributed to a large number of children who are enrolled in basic education. For instance, during 2007, there are about 12 million pupils enrolled in elementary education while 5 million in the secondary level. The number of teachers employed and classrooms however, is not increasing proportionate to the yearly increase of enrolment. In addition, the Department of Education mandated all public schools to increase participation rate of pupils and ordered schools not to reject students. These conditions resulted in the phenomenon of large classes. Large classes are usually felt in the National Capital Region, Region IV-A or CALABARZON and the Autonomous Region of Muslim Mindanao (DepEd, Basic Education Information System Report, 2007). The increasing number of pupils/students which make up large classes will be continuously experienced by the basic education sector in the succeeding years.

The Philippine Normal University is mandated by R.A 9647 as the National Center for Teacher Education. As such, PNU’s one responsibility is to provide recommendations as regards innovations in teaching to the Department of Education (DepED) and Commission on Higher Education (CHED). As stated earlier, the increase in participation rate of pupils as mandated by DepEd resulted in large classes. In response to this
educational trend, pre-service teachers should necessarily be trained to teach large classes. Exploring on different pedagogical strategies that would be effective in a large class could possibly resolve the current problem of basic education having a large class size. Studies show that teaching large classes is very problematic among the teachers and students (Locastro, 2001; Ward & Jenkins, 1992). For instance, one Chinese student in this study revealed the first hand experience of the same problematic situation in China. According to the student, in China, a small class is composed of almost 70-80 students for primary, middle school and high school. The teacher could not take care of every student since there are too many students in one class. Some of the students would not listen anymore; others had the tendency to fall asleep. The worst thing was when some students would not attend classes and would only play games and computers outside the school. There is difficulty in monitoring students’ attendance since teachers cannot memorize the names of their students. As Ward (1992) stated “recalling student’s name was quite difficult in a large class.” Hence, there is a need for research to address problems on large classes to ensure the quality of teaching and learning. The merging of classes has been tried out in selected general education courses of the Philippine Normal University. One of these general courses was Values Education 1, which was the focus of this research. The data were gathered from two classes (merged) during the first semester of Academic year 2011-2012.

Review of Related Literature

Large class is not a new phenomenon anymore. There is vast literature on issues related to the teaching and learning both in small and large classes (Nakabugo, et al, 2008). The review of related studies focuses on the teacher’s performance and students’ learning, class size in relation to students’ behavior and the effectiveness of the teaching methods used in large classes.

Teacher’s Performance and Students’ Learning

There is always a debate about whether small class is better than large class. The issue of class size and its impact on student learning has been an issue of debate in tertiary level education. It is often believed that learning occurs in proportion to class size. The smaller the class, the more students learn (Mgeni, 2013). Many researches support the idea that class size affects teachers’ performance and students’ learning. Blatchford, et al (2007) said that the number of children in a class will increase the amount of time that teachers spend in procedural matters and conversely, decrease the amount of time that can be spent on instruction and dealing with individual children. More time is spent by the teacher to manage a large class than the ordinary class size. Some participants in the study of Cakmac (2009) believed that in small classes, teachers would become less tired, more productive, and develop more positive interactions and effective communication with students. The major challenges faced by teachers in large classes included; getting students to participate, getting students to pay attention, assessment challenges, and identifying weak students. These findings suggest that teachers are facing challenges that must be addressed if students are going to perform well (Mgeni, 2013).

Class Size and Students’ Behavior

Delivering quality and value to a large class presents unique challenges which according to Kennedy and Siegfried (1997) include, difficulty to control the quality of student learning, dealing with student diversity, effectively dealing with formative evaluation, maintaining attention, and getting authentic student-centered learning. Children in large classes are more likely to be off task, particularly in terms of not attending to the teacher and not attending to their work when on their own (Blatchford, et al, 2003). Pupil discipline was seen to be more difficult in large classes and more of an intrusion into the teaching and learning process. In smaller classes, there was more time to mark work, assess pupils in terms of process as well as product, and plan work (Blatchford, et al, 2002). In small classes, there was more chance that pupils would be the focus of a teacher’s attention. Conversely, in a large class, there was more chance that a pupil would be in “audience” mode, that is, listening to the teacher address all pupils equally or another pupil. Small classes, seem to allow more individual attention while in large classes, children are more likely to be one of the crowd (Blatchford, et al, 2007).

Effectiveness of the Teaching Methods Used in Large Classes

Class size inevitably influences teaching styles (Capel, et al, 1995). The oldest conventional method of transferring information to a sizeable audience is very much instructor-centered and makes learning passive. The conventional method of teaching large groups has been criticized as being negative as it encourages rote learning and there is lack of independent learning by students (Thomas, et al, n.d.). According to Matiru, et. al...
In terms of the most effective methods of teaching large classes, most teachers perceived the lecture/interactive discussion method as the most effective. Teachers' comments as to their reasons for rating this method as the most effective seem to suggest that it involves students in active learning rather than passively listening to a lecture (Mgeni, 2013). Additionally, the combined lecture/discussion teaching method was the most preferred among students. Student comments as to their reason for selecting this as the most valuable method seem to suggest that they have a desire to be active learners, engaging in discussion rather than passively listening to a lecture. No student indicated that the lecture/discussion method was the least valuable teaching method. This finding suggests that most students enjoy a blend that includes at least some component of active learning/participation in combination with traditional lecture, and confirms the importance of including some level of discussion during the class, but also providing structure through an organized lecture (Carpenter, 2006).

Research Aim and Questions

This research aims to find out the problems encountered by teachers and students in a large class and explore some pedagogical strategies in teaching a large class. Specifically, the study answered the following questions:

1. What are the problems encountered by the teacher and students in a large class?
2. What are the effective pedagogical strategies in a large class as experienced by students?

Research Design and Participants of the Study

The study is an exploratory research. It is focused on merged classes in the general education course of the College of Arts and Social Sciences at the Philippine Normal University. The Philippine Normal University is a teacher training institution. This research particularly describes the problems met by the teacher and students in a large (merged) class in Values Education 1, topic was on Personhood Development, exploring some pedagogical strategies that could be effective in teaching large classes.

Classes for merging have been purposively selected by the Registrar’s office from the general education courses offered by the different departments of the College of Arts and Social Sciences. In this study, two sections of first year students were pre-selected and merged composing of 84 students in Values Education 1 during the first semester of academic year 2011-2012. The researcher of this study served a dual role, as a faculty teaching the course and at the same time a researcher in the classroom.

Data Collection and Analysis

In the Philippine setting, each academic year in higher education is composed of two (2) semesters, equivalent to four (4) quarters. On the first quarter (June to mid-August), observing and noting down of difficulties in teaching large (merged) class were done. Students were also asked after the first quarter of their own learning difficulties in the large class. This was done by getting responses from open ended-questions.

Participant-observation was also used to gather data. The students in the Values Education 1 merged class were observed and the teaching-learning process was documented while teaching the course. Specific focus was on the exploration of innovative pedagogical content knowledge applied by the faculty-researcher in teaching the specific topic and documenting the learning behavior of the students. The researcher kept a daily record (research diary) of the teaching-learning process following the observation guide below:

| Date of Teaching: | |
| Course: | |
| Topic: | |
| Description of Strategy Used: | |
| Positive Results on the Learning of Students: | |
| Difficulties Encountered: | |
| Observable Learning Behaviors of the students/Class: | |
The faculty researcher teaching the Values Education course wrote down the instructional process after the completion of each lesson as a means of data collection from the teacher’s point of view. The faculty-researcher considered the teaching learning processes in gathering the data from students in a merged class. In addition, a process observer (student teacher) was assigned to capture the behaviour of the students while the faculty researcher and/or a student facilitator were doing some classroom activities. The teaching-learning process was audio taped. The assigned student teacher as process observer took charge of writing some field notes on the observed behavior/reactions of the students in the classroom activities.

Non-graded essays were also used to elicit feedback from students regarding challenges and pedagogical strategies in teaching a large (merged) class. Students were asked to write a reflection on the process of teaching the large class identifying their learning difficulties. They were also asked to make some suggestions on the way by which their learning could be maximized in a large class. Open-ended questions were given to the students at the middle of the semester as guides to their reflection. Focus group discussion was done at the end of the semester to verify the responses of the students regarding their experiences in a large class.

Tallying was used to summarize and analyzed the students’ responses gathered from open ended questions and. Students were also asked to rank the effectiveness of pedagogical strategies used in the classroom at the end of the course based on their motivation and learning. Frequencies of responses from the open-ended questions and ranking were tallied and summarized into a matrix. Students’ reflection papers and focus group were considered to support the frequencies of responses with qualitative responses of students’ experiences. The faculty researcher sorted out and categorized data gathered.

Results and Discussion

1. What are the problems encountered by the teacher and students in a large (merged) class?

Problems Encountered by the Teacher

During the first few weeks of teaching, some difficulties in teaching the large (merged) class were experienced by the teacher. One of the problems was on the preparation of the room for large classes including the needed equipment such as lapel microphone, multimedia projector, or at least TV for video presentation. It was such a double effort on the part of the teacher to teach large classes without the prepared big room and multi-media equipment. Without the lapel microphone, the teacher had to speak louder in the large class than in the class with an ordinary class size. Aside from the extra time needed for the preparation of the equipment/gadgets to be used for the conduct of the lesson, the teacher had to buy her own equipment to make the large class easy to handle.

Discipline among the students was also a problem during the first few weeks. This problem was pointed out by one researcher in a similar study (Blatchford, et al, 2002) where pupil discipline was difficult and was considered an intrusion in the teaching learning process. Since the student participants were first year students whose behaviour is similar to high school students, still full of energy, they became noisy reacting to lively activities. Too many energetic interactions during discussion and activities posed a problem of discipline and delayed the topics supposed to be finished in a semester. Extra effort was given by the teacher to discuss specific topics because of the discipline problem of the students.

Checking of attendance was also a problem because it could not be done using a seat plan like in the ordinary class. Giving of attendance sheet to be signed by all students was done but this strategy usually takes time. Another strategy to check the attendance, which was perceived as effective, was to let the team leader for each group to write the names of those who were absent in the group and give it to the teacher. To facilitate name calling and grading of individual student, students had to wear name tags.

Strategies to be used for the large class under study also posed another problem on the part of the teacher. The strategies that the faculty decided to try out were multi-methodology to address the diversity of learning styles and multiple intelligences of students. The faculty had to use her ingenuity to explore different and suitable strategy to motivate the students in listening to the topic and encouraging them to participate in classroom activities even if the space was congested.
Problems Encountered By Students

Table 1 shows the responses of the students when asked whether they have found any difficulty being in a large class. Sixty eight (68) students provided the Yes response which means that they found learning to be difficult in a large class and only eleven students responded No and provided the positive reactions regarding their experiences in a large class.

<table>
<thead>
<tr>
<th>YES Response = 68</th>
<th>NO Response = 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulties encountered</td>
<td>Positive Reaction</td>
</tr>
<tr>
<td>• couldn’t monitor the students’ development (10)</td>
<td>• More ideas presented (2)</td>
</tr>
<tr>
<td>• Noisy classmates (10)</td>
<td>• More social interaction because of the large class size (2)</td>
</tr>
<tr>
<td>• Too crowded (7)</td>
<td>• More fun to learn</td>
</tr>
<tr>
<td>• Misunderstanding (4)</td>
<td>• Controlled class</td>
</tr>
<tr>
<td>• can’t understand the topic well (4)</td>
<td>• More chance of getting to know other classmates from another section</td>
</tr>
<tr>
<td>• Unhealthy Competition (4)</td>
<td>• There is variety of ideas because of the diverse composition of the class</td>
</tr>
<tr>
<td>• confusion about the reports(1)</td>
<td>• Better chance of having more friends</td>
</tr>
</tbody>
</table>

Table 1: Students’ Responses

Large class creates excessive noise (Nakabugo, n.d). Most of the students perceived noise as a problem during discussions and activities. Some students were uncontrollable during the initiation of lively classroom activities. As a result, some students do not listen and participate because they could not fully understand what was going on. This observation coincided with what was found in the literature that students who could not concentrate well on the topic had the tendency to be noisy, too (Carbone, 1999).

Monitoring individual student’s development or learning progress was also a problem in a large class. This is a valid perception because the teacher found it difficult also to monitor and evaluate student’s progress and found it hard to remember even the names of the students. Those who were active sharing their experiences could easily be remembered but for those quiet/timid types of students, it was too hard for them to be noticed in a large class.

Unhealthy competition between the two sections was also perceived by a few students. Students knew it well that they belong to another section. Merging was not effective in a sense, since the two sections were not really treated as one class. Because of this, according to some students, they had the tendency to compete with one another. One Chinese student in this large/merged class gave her comments in her reflection paper on the disadvantages of having a large class:

*First of all, as compared with small class, the big class has obviously more students. In a way, it is not good for teachers to teach all students. Sometimes the classroom is not so quiet anymore because of sharing too many ideas. Some students take the time to have free talking about other things. The quality of the teaching in the class decreases. Secondly, in order to give us more chances to share ideas, we lose more time to be taught by our professor. As a student, teachers are our guide, we need them. Thirdly, it is unfair for some students who are lazy. The lazy students will catch some more time to be lazy because not all of us can share opinions in a short time.*

However, some students have positive perceptions toward large class – the more the merrier so to speak. Some students appreciated the social/classroom interaction in a large class. The large size of the class presented more ideas coming from the diverse composition of the class. There could also be more chances of getting to know other students from another section, thus making more friends according to the perception of some students. One student has this reflection on the advantages of being in a large class:

*We experience different feelings in this big class. During the big classes, it seems we are in a big family. We can share different ideas to our siblings and our parent (our professor).*
Even in one small problem, we can get all ways to solve it. That is a good way and a good situation for us to share our thoughts. We can not only improve our speaking skills, but also learn how to catch the chance. We can compare with others and find out about our shortcoming. We can make more friends in the class. We can share our studying equipment.

Having shared positive reactions by some students in a large class, the overall result suggests that the majority of the students experienced more learning difficulties in a large class.

2. What are the effective pedagogical strategies in a large class as experienced by the students?

Table 2 shows the effective pedagogical strategies in a large class according to the experiences of the students.

<table>
<thead>
<tr>
<th>Specific Strategies Used (f)</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer teaching</td>
<td>63</td>
</tr>
<tr>
<td>Lakbay Diwa (Guided Meditation)</td>
<td>30</td>
</tr>
<tr>
<td>Video clips- (22)</td>
<td>22</td>
</tr>
<tr>
<td>Energizer/ Interactive activities</td>
<td>8</td>
</tr>
<tr>
<td>Debate</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 2: Pedagogical Strategies

**Peer/Team teaching** was found to be one of the effective strategies in teaching large classes (Michaelsen, 1982, Valerien, 1991). Students were grouped into three’s to deliver one topic in the syllabus. The students were guided to do the presentation in a lesson plan format. Suggested strategy was prescribed in some topics, however, students were encouraged to use their creative mind to innovate a strategy that would most likely be applicable and effective in a large class. In this approach, students were supposed to take the role of the teacher-facilitator. Most of the students appreciated this strategy; however, there were also some who did not appreciate it particularly if the student-facilitator was not good to handle the class which usually led to the use of the traditional reporting strategy. It can be noted that the perception of learning of the students was divided. Others would like their peers to facilitate them, even if there was a problem on the behaviour of their classmates, like excessive noise during interactive activities, so with classroom management while others found it inappropriate for a large class. There was one good reflection paper of the student citing this strategy:

**In the class where I belong composed of two sections, I would say that discussions flow smoothly. We have many opinions and knowledge to share about a certain topic. Each learning team’s report was in order. I was able to develop my relationship with other classmates especially when we are in small groups. There are also small problems in our class; there is no perfect group, anyway. Since we belong to a large class, we have problems with the number of chairs and sometimes, it’s hot and noisy particularly during group activities. Going out of the room was also a problem because we are too many in the class.**

**Lakbay-Diwa** or Guided meditation was used by one student facilitator and it was well appreciated by the students in a large class. Since this is a reflective activity, the students’ ability to focus on the topic was observed. They participated well in this activity and also during the discussion of the topic. There was maximum participation since the students had the chance to listen first during the meditation process and then reflect on what they have learned. To quote two of the students who emphasized the use of this strategy,

**Understanding where we came from and where we are going led us to the core of our being where I understand the different emotions of a person. I also learned how to share one’s character and the values associated with it. Through the guided meditation facilitated by my classmate, I learned the things that I need to value in life.**

**Through Values Education, I learned to take care of things that I have such as, having good relationship with my classmates. I learned to be open with them that’s why we became close to each other. I learned how to be a good student because of the activities we experience in our sessions that help us. It’s easy to understand the topic through guided meditation because the students are able to imagine the situation they are in.**
The use of video clips was also found to be an effective strategy in teaching a large class. The faculty-researcher provided the multi-media equipment such as LCD and sound system. The student-facilitator had to bring his/her own laptop and present the topic using Microsoft PowerPoint. Alongside with most of the presentations was the use of video clips taken by the students from the worldwide web. It was observed that students were attracted to video clips presented especially if the content of the video clips are related to their experiences or appropriate to their age. Since students can relate to what was presented, they had to listen to the story or watch the movie. One student said that:

*The video clips presented to us were nice because they are related to the topics and the themes are “IN” to us. They caught our attention because the stories are close to our experiences as adolescents.*

Interactive activities/Energizers (games and simulations, quotations) are also good strategy to start a lesson in a large class according to some students but they had to be controlled and presented well by the facilitator. Energizers that require movement or other motor coordination tend to elicit full energy from the students and to create noise. This could be an effective strategy for motivating the students to learn but it should be handled properly by the facilitator. According to one student in his reflection paper,

*In so many topics that we discussed in Values Education, we are not only learning but we are also enjoying our way of learning because we learn how to interact with our classmates.*

Debate is another effective strategy appreciated by most of the students when they talked about the topic on RH Bill (Reproductive Health Bill). Most of the high average students like this strategy in particular for the reason that they could share their thoughts and position regarding the topic. Debate stimulated the minds of the students according to them especially when the topic being discussed was found to be relevant to their lives. It was a stimulating strategy particularly in a merged class which showed the tendency for two sections to display competition. However, some of the students perceived the competition as unhealthy because it often led to argumentative discussion.

*The debate in our class was good. All members of the team prepared and did the research. This is a good strategy because we learned how to look for ways on how to fight our opponent using our informed opinions. Students are active using this kind of discussion because all members of the class are interested to listen to each speaker. The only problem is when the class became so noisy because everyone wanted to speak.*

The faculty-researcher who was the one in-charge of the class managed to get the attention by giving provocative questions to clarify the topic for discussion. Question and answer strategy promotes interaction and learning in large classes (Nakabugo, n.d.). The students focused on listening to the questions posted by the teacher because of being afraid to be called without the ready answer. Probing students to think about the lesson using question and answer encourages more class participation. More class interactions motivate students to listen and learn new ideas from their classmates and from the inputs coming from the teacher. Getting attention of the students in a large class posed a learning problem as the result of the study suggests, however, using an effective pedagogical strategy could address the problem of class size and students’ inattentiveness. Students enjoy active learning with their participation rather than passive learning (Carpenter, 2006).

Conclusions

In conclusion, teaching a large class was difficult and challenging. Many difficulties were encountered as well as insights gained by both the teacher and the students. The research affirms most of the literature on large classes -- more problems encountered rather than its benefits. However, the reality of teaching large classes in the Philippines especially in basic education is evident. More effective pedagogical strategies must be explored. Most of the strategies used in the Values Education class were only observed in terms of its effectiveness in teaching the class to catch students’ attention and motivation in the teaching learning process. Students’ perception, according to their qualitative responses, suggested that peer teaching, guided meditation and the use of video clips are the strategies they liked most in learning the content of the course in Values Education 1. There could be more unexplored strategies suitable to differentiated instruction. The conduct of a follow up research on large class to explore other effective strategies considering the abilities and diversity of the students is needed.
To ensure quality of the teaching-learning process in a large class, classroom facilities intended for a large size of students must be prepared and be made readily available such as large room with enough chairs, multimedia projector, laptop and sound system. These, however, are not the sole ingredients to ensure quality instruction. The learning style and ability of the students could also be factors. There are noted cultural differences in learning. For example in China, the teacher will tell the students on how to do everything, but in the Philippines and other western countries, the teacher will let the students find the answers by themselves (based on personal reflection of a Chinese student). Learning styles, student’s ability as well as cultural differences have their own advantages and disadvantages. It is not only the size of the class that truly matters to meet quality instruction.

Choosing the right pedagogical strategy entails making a connection with the learning style and the ability of the students in the large class.

This is an exploratory study that could identify relevant variables specifically on pedagogical strategies in teaching a large class. Objective outcome measures could be developed for further research to measure the costs and benefits of increasing class size and a more systematic approach of identifying pedagogical strategies that could improve learning outcomes in a large (merged) class.

References:


DepEd, Basic Education Information System Report, 2007


Nakabugo, M.G.et.al. (n.d.) Instructional Strategies for Large Classes: Baseline Literature and Empirical Study of Primary School Teachers in Uganda.


Institutions must move from equating international strategy with student recruitment alone to a much wider internationalisation agenda where there is a balance in overseas activity between recruitment, partnerships, research and capacity building’ – The British Council (2008)

Summary

This paper argues that both the internationalisation and the employability agenda are significant variables with which to meet international students’ aspirations and expectations and represent a crucial agenda for universities seeking to add-value in the global context. Drawing upon the experiences of Coventry University in the UK, the paper demonstrates how employability integrated with internationalisation can help produce an exciting synthesis permitting educational providers to offer a higher value added experience to their international students.

Furthermore, this paper will argue that a focus on internationalisation and employability is a means through which Universities can enhance their reputation, their applied research links with industry and their market share. Consequently, this paper argues that providing students with those necessary skills to enhance their employability is a key strategic variable for those universities whose desire to add value in the global context.

Finally the paper reviews some of the successful initiatives undertaken at Coventry University in the UK including the successful postgraduate ‘Company Internship’ module and the initiatives pioneered by the University’s International Experience and Mobility Service.

Introduction

Higher education is a global big business and the contributions of international students are a highly significant financial element.

The UK is no exception to any other developed economy. Estimates vary as to the total value of international education. Two studies undertaken by the British Council, namely Johnes (2004) and Lenton (2007), suggested that the education sector generated overseas income ranging between £22.1 billion in 2001-02 (Johnes, 2004) to £27.8 billion in 2003-04 (Lenton, 2007). Adjusting these analyses to account for inflation implies that in 2008/09 prices the estimated value of UK education related exports stand between £25.1 billion and £30.9 billion.

The most recent estimate of the value of international education to the UK economy was provided by a report for the UK Government Department, Business Innovation and Skills (2011). It estimated that the value to the UK of educational exports was £14.1 billion in 08-09 with educational foreign direct investment totalling a further £9.6 million. Government forecasts suggest that the industry could be worth approximately £21.5 billion in 2020 and £26.6 billion in 2025 (in 2008/09 prices) representing an annual growth rate of approximately 4.0% per annum in real terms.
Greenaway (2010) noted that Higher Education was more important than both agriculture and the combined value of the pharmaceutical and aerospace industries whilst Brown et al. (2008) commented upon its implicit role of producing graduates capable of working within globalised economies and, in so doing, supporting national economies. However, Jackson notes (2009) that employers remain concerned over the quality rather than the quantity of graduates and comments upon a recent survey by the CBI (2007) which reported that 32% of employers thought that raising the quality of higher education was a more important government priority rather than the 2% ascribing priorities to increasing the quantity of graduates.

Such tensions were heightened by the financial consequences of the 2008 global financial crisis and its aftermath of enormous government debt arising from bank bailouts, fiscal stimulus and structural imbalance and the possibility of future contagion of interrelated indebtedness spreading. All this has brought an untimely reality check to global economies, their planned development and their expenditure plans for Higher Education. For example, UK government debt in 2011/12 was £121 billion or 7.9% of GDP and the significance of such debt has ramifications for future public sector expenditure on Higher Education. Whilst in the recent past 60 per cent of UK Higher Education funding was publicly provided, the figure has now fallen to 40% with students now contributing the remaining 60% by themselves.

And this shifting burden of educational expenditure is occurring at a time of a growing mismatch between what the emerging global labour market requires and what university education provides. For example, in 2011 in the UK, 25 per cent of those who left university with a degree were unemployed (compared to just 20 per cent among school-leavers) and yet exactly at the same time as there is high graduate unemployment or underemployment, there remain employers with unfilled vacancies who cannot find people with the necessary personal attributes or skills. Indeed, a recent survey (Burton 2012) found that almost 45 per cent of employers struggle to find people with the right skills for entry-level positions and almost 70 per cent blame this shortfall on lack of adequate training.

Without question, traditional state funded Universities will have to provide more with less and simultaneously will have to become much more entrepreneurial in acquiring additional income generating activities as the means to bridge the financial gap between their planned ambitions and the their newfound financial realities. Coupled with increasing competition from both within and outside the UK sector, the future context of Higher Education will remain highly challenging for UK Universities.

Innovation was defined by Stevenson and Jarillo (1990) as the process that endows existing resources with a new capacity to create wealth and their definition remains as pertinent today as when it was first coined. It has resonance for education as to any other industry as there will be a premium attached on a variety of new value adding activities, educational products and processes that either generate revenues or reduce costs or a combination of both. Likewise there will be a premium on those individuals who are both innovative and entrepreneurial and who can implement the new ideas that can enhance and sustain educational value and part of this focus will be upon the importance both educationally and financially of international students.

**International Students – Can Universities Combine Educational And Financial Responsibilities?**

The number of non-UK EU and international students enrolled on degree courses in the UK totalled 435,230 in 2011-12; 302,000 were non-EU international students. The UK has the second highest market share of students enrolled outside their home country, a figure estimated to be around 10%.

Thus one significant technique to increase future income flows is through increasing the numbers of international students studying at UK Universities. Indeed, the recruitment of international students has been seen as a financial lifeline for many universities because it represents a major source of income generation and because international students pay premium fees in comparison to domestic home students. In the most recent past, British Universities have experienced a favourable competitive position although the ending of the 2 year work visa, the establishment of the UKBA and stricter border controls, increasing competition from emerging economies and other English speaking countries could begin to erode the UK’s current competitive advantage.

China is the most significant provider of students to UK Higher Education, In 11-12, a total of 78,000 enrolled on degree courses in the UK with India and Nigeria being 2nd and 3rd with 30,000 and 18,000 students respectively. Malaysian students were the fifth highest source of international students to the UK with nearly 15,000.
However the lure of the income associated with international students is not sustainable without an integrated educational package. Universities must not only do the right things but they must also do things right, in other words Universities must meet and surpass the aspirations that international students expect and desire through offering them a bundle of educational services. Therefore an explicit recognition of mutuality of benefit is an essential pre-condition for a successful strategy in recruiting additional international students. Hence the importance of providing international students with work experience opportunities whilst studying in the UK in order to enhance their potential and actual employability. The link between employability and internationalisation is becoming a more visible and an essential component of internationalisation.

**Globalisation And Internationalisation**

Globalisation has been defined by Held et al (1999) to be the ‘widening, deepening and speeding up of worldwide interconnectedness’, a product of technological advances, faster transportation and the development of knowledge economies. It differs from internationalisation in the sense that internationalisation is normally perceived as an institutional or organisational response to globalisation with its variety of opportunities and threats.

Schechter (1993) grouped the goals of internationalisation into three main elements, pragmatic, liberal, and civic, each of which contribute towards what many today would term the internationally literate or globally competent citizen (Hunter et al 2006). Brookes and Becket (2010) reviewing the extant literature comment that these themes can be illustrated against the context of employability as:

(i) the development of knowledge and understanding  
(ii) the acquisition of values and attitudes  
(iii) the development of skills and capabilities  

Each of these themes can be enhanced by a proactive internationalisation agenda. With reference to the simple internationalisation framework depicted below in diagram 1, each of these elements, the development of knowledge, the acquisition of values and the development of skills can be improved. Indeed a quick reference to the normal set of internationalisation activities practiced by the more internationalised of British Universities would reflect this.

![Aspects of Internationalisation Diagram 1](image)

Firstly, student mobility is the process whereby a student is able to move from one country to another as part of a short term or long term exchange package that is either credit or non credit rated. It provides introductory and limited or in-depth and extensive periods of study abroad and both offer exposure to diverse and often contrasting cultures and experiences according to personal choice.

Secondly, the ability to allow students to study in diverse or multi-country contexts and be awarded a degree from a foreign university is also reflected by institutional or programme arrangements such as 2 + 2 or 3 + 1 undergraduate degree programmes. Here students spend the first two or three years at their home institution but
spend the last one or two years at a foreign university obtaining the foreign university’s degree or a Dual or Joint Award from both institutions.

Thirdly, staff mobility is integral to internationalisation as it provides staff with a wider understanding not only of subject knowledge and application but also the cultural values enabling their own students seeking international employability. Again staff mobility can be short or long term and in addition to benefitting from teaching in a foreign context, it also represents an excellent opportunity to pursue their personal research agenda on an international scale.

And finally, the curriculum that students study and staff teach to will impact positively or negatively upon the students, their values and levels of cross cultural understanding. Reducing the cultural isolationism of a UK degree through case studies and examples from foreign countries exposes students to a more critical awareness of contemporary issues as well as enhancing the student’s sensibilities to others.

These recurrent themes are important in the development of graduate skills and increase their employability chances. Such activities support the definitional emphasis on process highlighted by Knight and Hans de Wit (1995) who stated that internationalisation was

*the process of integrating an international/intercultural dimension into the teaching, research and service functions of the institution*

Later, Knight (2003) would contend that internationalisation was not simply generic or one-dimensional but consisted of two main spheres of action, external and internal, both requiring different solutions simultaneously, namely:

(i) internationalisation policies adopted for implementation within the university or institution
(ii) internationalisation policies adopted outside or beyond the university or institution

The former refers to enabling students to be exposed to and develop an international awareness yet without having to leave the confines of the university itself whilst the latter requires the physical movement of staff and students with location in an international environment.

One further view is to contextualise the discussion by subdividing the student population into home and European students on the one hand and international students on the other hand. Internationalisation policies now will vary according to which constituency the policy is aimed at. For example, internationalisation for predominantly home/EU students is achieved by *externalising* the internationalisation process to provide incentives and opportunities to encourage the greater outward movement of students; on the other hand, for international students who have already taken major steps in their own personal internationalisation process through their choice of being educated in a foreign country, internationalisation is more about *internalising* the internationalisation process - i.e. addressing those issues to provide international students with a greater and more effective understanding of the cultural and social skills necessary for survival within the host community and that includes inculcating and embedding suitable and sufficient employability skills; and it this latter point that is addressed more fully later in this paper.
Thus internationalisation is much broader in scope than the narrow cash nexus associated with student recruitment. Brookes and Beckett (2010) reviewing the literature provide an excellent summary framework capturing the essence of internationalisation at degree level. Their framework depicted in diagram 2 provides an opportunity for benchmarking to assist an organisation’s internationalisation process.

Clearly the distinctiveness of a University’s internationalisation strategy will be dependent upon the differing emphases attached by senior managers and other key stakeholders to the varying, and at times conflicting, elements that compete for resources supporting the internationalisation agenda. Undoubtedly, the commitment of senior managers to the internationalisation agenda is crucial. And what is abundantly clear is that simply having a high proportion of international students on campus does not equate with a truly internationalised education learning experience.

International Students and Employability

Defining graduate employability is not a simple concept to define. For example, Knight and Yorke (2004) focus on a graduate’s ability to adapt and to use their personal and academic skills. Others, for example Smith et al (2000) focus on outcome measures that associate graduate employability with employment and successful first destination statistics after leaving university.

Whatever definition is chosen, knowledge and understanding are deemed integral to the development of a graduate’s future skills and the development of values is also essential especially where cross-cultural capabilities are deemed essential for employment. Hanson (2010) comments that internationalisation is the process that prepares students for employment in a globalising world. However for some time, employers have raised a number of concerns about the lack of appropriate skills that graduates posses preventing them from participating fully in the workforce. The UK’s Confederation of British Industry reported (2008) that 27% of employers were dissatisfied with graduates’ generic employability skills especially those identified as business, non-technical and interpersonal skills. Cumming (2010) notes the key areas of deficiencies are communication, human relations and problem solving and quotes an extract (Rugby Team, 2007) to succinctly highlight the issue.
The message to students and universities is clear: while obtaining a good degree result is important, it must be achieved alongside the development of softer skills to make the most of their opportunities after graduation.

Universities are no longer islands of education; they are very much subject to the ocean tides of globalisation and the accompanying awareness of how closely performance indicators are monitored. One metric that emerged quite recently was graduate employability with Universities being monitored by their respective governments in assessing the proportion of their students who acquire graduate level jobs on completion of their degree courses. Graduate level employment figures influence University League Table positions and students and their parents (who most likely finance their son’s or daughter’s education) are more aware of the ability and shortcomings of Universities to add-value in terms of employability. Indeed there has been a growing recognition that the outcomes of University education are as important as the educational process itself. In short, there is a continuing shift from public provision to a more market orientated approach especially in relation to University funding and resource allocation decisions.

Universities’ decision making and educational processes are under much greater public scrutiny these days and whilst Higher Education reform is not without its critics, it was justified on the grounds that Universities would be more responsive, offer better value for taxpayers’ money, be better funded and be more capable of adapting to the changing needs and requirements of students, their parents, employers and society’s requirements. Thus universities were provided with an opportunity to focus on educational outcomes as well as process and, in so doing, begin to differentiate themselves and their departments by their ability to position themselves to meet the key emerging education themes of this decade.

As previously mentioned, one metric for measuring the effectiveness of universities was the index of graduate employability. There was an implicit assumption that this would measure the economic value and social usefulness of a degree course in preparing young graduates for the world of work. In short, it was almost a value-for-money index. Measuring outcomes would affect educational behaviour and those Universities whose graduates would be swiftly employed by employers upon graduation would be deemed to possess those key employability skills. Indeed Sharma (2008) notes the growing educational divide between those universities who produce dynamic, motivated, switched-on students and the rest. Such Universities would be deemed to be higher ranked. Fallows and Steven (2000) comment that:

*Higher Education in particular must provide its graduates with the skills to be able to operate professionally within the environment required for the ‘learning age’ or learning society.*

Preparing readymade students, primarily for domestic students (but of equal relevance for international students too), for the world of work highlighted the shift in emphasis in labour policy. Until the early 1980’s the objective of ‘full employment’ was a shared mantra of all political parties but by the 1990’s and beyond there was a gradual acceptance that the state could no longer effectively provide full employment. Instead a new policy developed whereby the State and the private sector would work in partnership to invest in education and training with the explicit aim of enabling workers to become ‘fully employable’ (Brown and Lauder 1996). The distinction was significant as it permitted an emphasis on employability rather than the object of full employment, upon quality rather than the quantity of employment and accompanying this change, an emphasis on skills formation not simply to develop a highly educated workforce but one that was also equipped for increased occupational mobility and flexible work patterns.

As mentioned earlier, internationalised Universities need to offer a package of educational activities to attract international students. In the past, it was primarily about enhancing UJK student’s employability skills but today the most internationalised of UK universities are also adopting a more balanced approach with an increasing emphasis upon providing support for their international students and drawing on their employability experiences to provide more effective support.

The next sections outlines some of what Coventry University has been pioneering to enhance employability opportunities for it international students.

**The Coventry University Context**

In Coventry University’s 2007 Corporate Plan, the term ‘Internationalisation’ was first introduced as an explicit objective and one of six strategic core University activities. In 2008, the University’s International Development Committee was renamed to reflect this shifting emphasis to the ‘Internationalisation Development Committee’.
Indeed, the most recent University’s 2010 -15 Corporate Plan has identified internationalisation and globalisation as one of four key themes characterising the University’s future development.

Coventry University has been extremely successful in recruiting international students. In 12-13, there were in excess of 5800 international students from over 140 countries and from all 5 continents in the world studying on a variety of undergraduate, postgraduate and doctoral programmes at the university in the Faculties of Art and Design (AD), Business Environment and Society (BES), Engineering and Computing (E&C) and Health and Life Sciences (HLS). 80% of all students are enrolled within BES (47%) and E&C (33%)

The key question to require an answer is how then can the university offer an appropriate employability experience to these international students?

Can Universities really support the enhancement of Work Experience for International Students?

In recent years, many UK universities have developed employability initiatives, either for a wide range of students at all levels, or for more limited numbers, often in the second year of a student’s degree course. The Add+vantage Scheme at Coventry University (ACU), introduced in 2006, was one of the first university-wide accredited employability programmes in the UK and was offered to all undergraduates in each year of their study. Resources were allocated by senior management to support 150 different employability modules with students undertaking one 10 credit module per year on their course, contributing a total of 30 credits to the 360 required for the undergraduate degree award. Students needed to pass those ACU modules at all levels to receive their honours degree.

ACU modules vary from, on the one hand, specific skills in IT, Marketing and Languages, through to the other hand, generic employability skills in Team-Work, Communication, Leadership, Presentation and Project Management. Also offered are Volunteering and Work Placement modules. Administratively managed by the Careers and Employability Service, teaching is delivered by University academic and professional staff. These modules are popular and evidence has emerged that success rates on these modules is higher than average. The average pass rate for the undergraduate work experience modules in the ACU scheme was 92 per cent in 2009/10, compared to the scheme average of 84 per cent. Students are engaged by responding to work-related problems and ‘real-life’ scenarios to develop their business and commercial awareness and professional communications skills. The assessment methodology for work-based modules explicitly addresses the requirement for students to show employers how they are reflecting critically upon their learning experiences outside the classroom and is captured through diaries, short reflective reports and assessed presentations.

ACU Teaching and assessment methods

Many employability initiatives developed over the last few years, including the Add+vantage Scheme are grounded in the latest findings of pedagogical research (Knight and Yorke, 2003; 2006). The programme at Coventry aspires to involve learners in the process and, where possible, uses active approaches to teaching, learning and assessment with an emphasis on experiential, problem-centred and work-based learning and work experience.

Cassidy (2006) identifies a number of factors which contribute to the successful teaching and assessment of employability programmes. Amongst these factors is the importance of the way the programmes are delivered. Teaching of ACU students often takes place in smaller groups (15-25) creating many opportunities for training, facilitation and a practical skills based delivery rather than the traditional lecture approach. This permits the involvement of students in the informal assessment of skills, including peer review of CVs, observation of presentations and involvement in assessment centre type activities. Cassidy (ibid) also considered peer assessment as a potential strategy for developing employability skills and found that despite some concerns about the responsibility attached and their ability to be effective, students were positive about being involved in this task. Peer assessment is one example of educational practice which is likely to contribute positively towards the development of employability skills. Falchikov and Goldfinch (2000 pp.287-322) describe this as ‘engaging with standards and criteria in order to make judgments about the work of peers.’ Specific benefits cited, included: increased student responsibility and autonomy, evaluative skill development, insight into assessment procedures and expectations of high quality work. Students were also felt to work harder with the knowledge that they would be assessed by their peers. Gibbs (1995) also felt that peer review is associated with the development of the ability to make judgments, to supervise one’s own work and to encourage responsibility for learning. Commenting on peer assessment, an undergraduate student at Coventry University stated ‘it was really
hard at first when the tutors were asking us to comment on other students work, but I got into it eventually and it taught me an important skill of being critical but also being constructive and sensitive to the needs of my peers.'

Cassidy (ibid) also found the relevant context to be crucial to the success of employability learning. Modules drawing on industry standards, with external assessment from employers and accreditation bodies, are popular on the ACU scheme with student feedback highlighting those modules as relevant and credible. One such example is the ACU IBM mentoring module for Year two computing students, a module involving academic tutors, Careers Advisers and staff from IBM working jointly in the delivery, feedback and assessment of students' performance in the module. Students are assigned an individual mentor from IBM and opportunities are provided to visit the company and explore live projects of the mentors.

Key components of assessment include IBM assessing student CVs, completion of an IBM graduate application form, a presentation to a panel on an IT related topic and a ‘realistic’ job interview using IBM criteria. Many students choose this module because they would like to work for a company such as IBM and see the benefits of having direct contact with a graduate recruiter both inside and outside the classroom. One student recalls, ‘the best thing about this module was the contact with the company. It made me work harder on my CV and the presentation that I gave to them. I was very nervous during my assessed interview but the tips they gave me at the end were really helpful. I think there should be more modules like this.’

Whilst the ACU programme builds on employability skills development normally over a 3 year period, there is a greater challenge in integrating this development within the 1 year postgraduate degree programmes, a salient point given that nearly 70% of all international students at Coventry University study at postgraduate level.

The next section outlines how the university supports employability for this group of students through a number of initiatives including the Masters Company Internship Programme in Coventry Business School and also through the activities of the UK Work Experience team located in the International Experience and Mobility Service (IEMS).

The MBA Company Internship Module – challenging stereotypes

Coventry University Business School is renowned for being a highly internationalised Business School but a challenge for the School was how many international students would engage with a module deliberately created requiring them to be both active and reflective in their engagement and in their learning. Research on international students has often highlighted international students as being passive and unreflective when it comes to their own learning (De Vita, 2004, Smith, 2006).

Could the successful construction of a module with structured work experience and with clear employer involvement in design and delivery have clear positive effects on the ability of international graduates to secure ‘graduate-level’ employment? The work of Mason, Williams and Cranmer (2009) suggested that this could be the case but the challenges were daunting.

However, the Business School’s MBA programme introduced the Masters Postgraduate Company Internship module in 2006 to address these issues for four main reasons. Firstly, strategic, namely testing the robustness and appropriateness of its prevailing Masters curriculum against the demands, expectations and vagaries of local, regional and international employers. The assumption being that if the curriculum was deemed weak, then ipso facto it would be unlikely that employers would wish to participate and have interns from the MBA programme; secondly, for sound academic reasons, namely enhancing students’ work-related learning (Moreland, 2005), their employability (Yorke, 2004), and the added value (Hay, 2008) all linking to the intended learning outcomes of the student’s chosen MBA pathway; thirdly, for applied research reasons, namely successful internship students could open avenues for the Faculty and the University into a company or industry to advance the University’s applied research agenda.

And there was a fourth reason too although this did not become apparent until after a couple of cohorts, namely students reported that one of the main reasons they were applying to Coventry Business School was the opportunity to undertake the company internship. The internship thus was becoming a USP (unique selling point) of the School and the Coventry MBA became well known as one of only a handful of UK MBAs to explicitly recognise internships as an integral element of the MBA curriculum.

The ‘Company Internship’ module is worth 60 CATS of the 180 CATS required to complete the MBA programme and therefore the module represented a significant element of a student’s MBA Programme.
Internship placements run for an 8-12 week period in the third semester and during this time interns work on a real live business issue identified by the host company in conjunction with the Business School.

The Internship module is a substitute to the traditional, conventional Masters dissertation subject to students meeting the necessary entry criteria for the module and, if successful, the criteria set by the company itself. Internship students were hosted by companies in both private and public sector organisations, large and small, charities and the voluntary sector but the common feature is that the Internship students were all engaged in undertaking research on real live projects as opposed to desk based or theoretical projects.

The formal aim and objectives of the module was to provide an opportunity for students to:

- apply theory into practice
- develop their personal skills
- learn to work independently within the constraints of the host organisation
- undertake work of a significant nature on a real organisational issue
- apply and evaluate project management techniques and skills
- enhance the student’s employability
- gain experience of a competitive recruitment process
- reflect upon their experience and learning as part of their personal development
- provide overseas students with an opportunity to obtain UK work experience and for UK students, an opportunity to obtain overseas work experience

Due to the success of the module, in 2007, it was decided to broaden out the module to include all Masters Business programmes not just the MBA students and today, the internship is central to programmes in:

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<th>MBA/MSc Finance, Banking/Investment Management/Accounting</th>
<th>MA Event Management</th>
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<td>MBA/MSc International Sport/Sport Business Management</td>
<td>MBA General Management</td>
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<td>MBA/MSc International Business</td>
<td>MBMA /MSc Marketing, Advertising, International Marketing</td>
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An Evaluation of the Module’s Effectiveness

Since the introduction of the module, over 400 students have completed the internship, 16% of students have been UK residents and 84% EU/International. In other words, over 320 international students have participated. These students have originated from 30 countries and all the continents of the world. As a consequence of the pre-selection training and the selection bias in the decision making process, the average module mark gained by Internship students has been at least a merit i.e. over 60% with a disproportionately high number of students being graded as a distinction i.e. 70% plus.

The Internship students are required to write a reflective account of their experiences and their learning at the end of the module. Support is provided on the reflective writing process although students are quite free to address issues personal to their individual internship placement. But this reflective work has provided the Internship team with access to a rich source of qualitative data and has allowed the Internship team to analyse the data using the NVivo software package, a qualitative data analysis (QDA) computer software package. The software helps researchers to organize and analyse non numerical or unstructured data allowing the team to classify, sort and arrange information and examine data relationships. The software has provided the Internship team with the added ability to identify trends and make observations generated from the qualitative data.

Using the NVivo software, the Internship team has identified five major themes emanating from students’ reflective writing about their Internship experience, namely:

1. Application of Theory into Practice
2. Working with Others and the Workplace
3. Personal Skills and their Development
4. Impact on Self-Confidence and Employment Prospects
5. Academic and Workplace Supervision
Each of these themes was categorised by a number of descriptors and a bank of students comments were built up, a selection of which are presented in Appendix 1.

The Wider University – Broadening the Provision of International Student Work Experience

The success of the internship module within Coventry Business School was the lever for creating an overarching model for UK work experience placement provision across the whole University to be of benefit for international students. Accordingly, in November 2012, the team responsible for developing and implementing the Business Faculty company internship module were tasked to establish the UK Work Experience Service (UK Wex) and were now based within the University’s International Experience and Mobility Service (IEMS). IEMS is responsible for work and study programmes overseas through ERASMUS, Leonardo and other initiatives but the purpose of the new team was to provide UK work related experience and placements for international students from all university Faculties. In other words, the employability agenda of international students was to be a key focal point for the entire University. Appendix 2 summarises all the individual elements which comprise the overall University’s strategy for developing this critical agenda.

UK Work Experience – progress to date

Based on the success and the demand for the Business School’s internship programme, one of the first initiatives implemented was to adapt this model and offer placement opportunities to all international students. In a similar vein to the internship module, all placements required students to undertake a project with a difference that there are opportunities to work on a group project with students from other Faculties and placements are not necessarily linked to specific academic credit bearing modules. Students are however required to reflect on their learning to identify and evidence their learning and skills development.

In the first six months of operation the team have placed some 109 international students into a work placement. Students come from across all four University Faculties as can be seen in the chart below. Host companies (SMEs and large) engaging with the University supply projects based in the public, private and third sector organisations.

Students Placed by Faculty

Demand remains high from organisations seeking students to complete business focused projects. However a number of other organisations including the public sector have provided opportunities for students in psychology, criminology, law, social studies. Several design projects have enabled engagement with Art & Design. The team continue to work with faculties to highlight and target areas where it has traditionally been difficult to source projects, such examples being journalism, law and finance, oil and gas. Projects typically run for periods between 6-16 weeks with students working either part or full time.

And selected students have come from the following countries:
Students register with the UK Wex team, having the opportunity to express their interest and apply for placements as opportunities arise. Selection to a project may be made by the UK Wex team on behalf of the organisation or by the organisation they and failure to be selected for one project would not preclude an application for another.

Preparation-Advancing Student Skills and Employability Training (ASSET)

International students undertaking a placement in a UK working environment face a number of challenges in adapting to the workplace in an unfamiliar culture. The ASSET programme has been designed to address these issues. ASSET encompasses three specific workshop areas as detailed below:

- Preparing students for undertaking a placement in the UK including such topics as UK norms and customs, employment law, team working
- Providing support whilst on placement including reflection, business communication, team working, networking, professional behaviour
- Post Placement-Follow-On workshops to enable students to identify their learning and development and plan their next steps

Preparing students to go on work placements is also a means whereby the selected students meet the underlying criteria that they are ambassadors for the university.

Evaluation

Evaluation of the new service is in its infancy, however early indications from student feedback have highlighted similar themes characterising the internship module namely:

- Application of Theory into Practice
- Working with Others and the Workplace
- Impact on Self-Confidence and Employment Prospects
- Personal Skills and their Development

Perhaps because of the more explicit student preparation on working in the UK provided by the ASSET programme, feedback has also highlighted students reflecting on the differences between the UK and the working culture in their country of origin. The focus has been on placements and projects sourced by the University itself but below we consider how extra-curricular activities can also enhance the development of employability skills for international students.

Extra-Curricular Activities

Whilst at university many students undertake paid or voluntary work, join societies or play team sports. They may be active in the students union or become university ambassadors. Many overlook the importance of such experiences, and fail to recognise the skills they have learnt and how they have developed personally through the experience. The practice of taking part in such activities will have enhanced their soft skills, helping them prepare for the workplace. The experience they gain of working in teams, perhaps leading a sports team as captain and learning to communicate with people of all levels through voluntary work should not be undervalued. A study by the National Centre for Educational Statistics (NCES, 1995) suggests that students
who participate in extracurricular activities learn the ethics of responsibility, diversity, culture, community, and teamwork. Importantly, the NCES argues that extracurricular activities offer the opportunity for students to apply theory into practice as the activities operate in a real world context. Blasko (2002) argued that employers believe extracurricular activities make students better team players and can improve their employability as they gain interpersonal and organisational skills.

Support for this view was by evidenced by one employer who said:

“*You can pick out the ones that have been involved in extra-curricular groups as they have learned to communicate with people at all levels and they are not afraid to just get on with things*”

To support students and help them recognise and evidence the skills they have learnt and how they have developed though the experience, an on-line resource has been developed which requires students to reflect on their experience, identify and evidence the specific contribution they made to the task/team; complete a skills audit against the skills and qualities employers look for as discussed previously and, finally, identify development needs. All of which is designed to enable students to demonstrate these skills to potential employers. Currently some 100 students are commencing these activities. Additionally, discussions are taking place with volunteer organisers both within and outside the university, expressing an interest in the resources being promoted and completed by these groups.

The Stereotypical views of international students as being passive and unreflective when it comes to their own learning are often cited in the literature (De Vita 2004; Smith 2006). The examples above set out to illustrate that this has not been the experience at Coventry University. Across the university in the academic year 2012-2013 in excess of 750 international students undertook some form of work experience during their studies, a figure set to rise annually as more international students seek the opportunity to gain experience of working in a UK organisation.

**Summary**

The global recession, increasing domestic competition and possible shifts in the patterns of international student mobility could have a negative impact upon the attractiveness of UK Universities. The identified financial need to increase international student numbers as a source of much needed revenue is a feature of many cash conscious universities but this paper has argued that focusing on cash alone will not sustain nor provide a sustainable long-term solution. Providing a package of educational enhancing activities for international students is vital and work opportunities and experience is a critical element.

Thus this paper argues that focusing on the employability agenda complements the internationalisation agenda, each support the other and together they provide a firm foundation to attract and to engage with international students as well as meeting their aspirations.
## Appendix 1 Themes & Concepts highlighted from the Internship Module

<table>
<thead>
<tr>
<th>Themes</th>
<th>Concepts</th>
<th>Student Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application of Theory into Practice</td>
<td>The real world</td>
<td>“I believe that the internship was the most important aspect of my MBA programme as the project was related to the sector of my interest. It was also helpful as I was able to apply my newly acquired knowledge gained from MBA modules to real business operational issues.”</td>
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<tr>
<td>The individual projects</td>
<td></td>
<td>“This module is a must for any Business studies. Every bit of this learning experience will be useful to me in real life.”</td>
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<tr>
<td>Being taken out of the comfort zone</td>
<td></td>
<td>“The internship was very challenging”</td>
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<tr>
<td>Importance of students contribution</td>
<td></td>
<td>“I had to apply all that I had been taught in class in the real world”</td>
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<td></td>
<td></td>
<td>“I noticed the huge gap between theory and practice”</td>
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<td></td>
<td></td>
<td>“Witnessing an event which I had worked on live in front of my eyes was a feeling one cannot describe”</td>
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<tr>
<td>Working with others and the workplace</td>
<td>Team members</td>
<td>“Team working and self motivation is an essential element of working in a small group of people”</td>
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<td></td>
<td>Managers</td>
<td>“It was very important to understand the unwritten rules”</td>
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<td></td>
<td>General workplace</td>
<td>“I was really impressed by his leadership skills”</td>
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<td></td>
<td>Culture</td>
<td>“His approach was to motivate”</td>
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<td></td>
<td></td>
<td>“I learnt how to interact in an international working environment”</td>
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<tr>
<td>Skills shown and the development of skills</td>
<td>Technical skills</td>
<td>“In fact I became so good at using the software I even helped other students who were having difficulties”</td>
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<tr>
<td></td>
<td>Interpersonal skills</td>
<td>“Time management and people management were instrumental for the work”</td>
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<tr>
<td></td>
<td>Time management and planning</td>
<td>“I learnt how to manage my time”</td>
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<td></td>
<td></td>
<td>“The project was not easy to complete but offered a very useful assessment of my soft skills. I saw a very confident me at the end of the project with a vast improvement in my interpersonal skills and especially my ability to work without supervision”</td>
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<tr>
<td>Impact on confidence and employability</td>
<td>Self confidence</td>
<td>Employability</td>
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<td>---------------------------------------</td>
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<tr>
<td></td>
<td>“I am feeling really confident of dealing in international business environment.”</td>
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<td></td>
<td>“The internship made me so emotionally strong”</td>
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<td></td>
<td>It has given me the confidence to believe in myself”</td>
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<tr>
<td></td>
<td>“The experience has also shown me the relevance of continuous self-development and that there can never be a one best way of doing things or a one size fits all approach to things, but a continuous improvement”</td>
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<tr>
<td></td>
<td>“Experience that money can’t buy”</td>
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<td></td>
<td>“It excited me”</td>
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<tr>
<td>Range of Activities Within Each Work</td>
<td>Experience Category</td>
<td></td>
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<tr>
<td>-------------------------------------</td>
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</tbody>
</table>
| **1. Employability Development**-Portfolio of activities | **Advancing Student Skills**
Employability Training (ASSET) - Work Ready skills programme |
| **2. UK work experience real projects-classroom based** | **GLP Programme** - Validation of experience and skills through reflection |
| | **UK Awareness programme**
(External) - Workshops on Fire Service, NHS, External |
| | **Mentor Scheme** - External mentor working on an individual/group basis to support development |
| | **Job Shadowing**
(Short period spent in workplace) |
| | **Industry Speakers** - face to face engagement learning assessed through reflection |
| **3. UK work experience within the university** | **Projects linked to modules**
(Real pieces of work set by organisations, linked to modules and completed as an integral part of the academic programme) |
| | **External business input to individual modules**
(Industry Experts engaging in the classroom with groups of students on subject related topics) |
| | **Business competitions/Dragons Den**
(Entrepreneurial activities Link with IAE) |
| **4. UK work experience through volunteering** | **Internships**
(Credit bearing module 8-12 weeks working within a team/department) |
| | **Work based dissertations**
(Framework in place Credit bearing module 8-12 weeks working on a desk based project) |
| | **Student Ambassadors**
(Validation of experience and skills gained and developed to be assessed through a range of activities) |
| | **Work Placements**
(Short medium, long term placements to enable students to experience UK work culture) |
| | **Language/Cultural Engagement**
(Lingu Mundi teaching opportunities) |
| **5. (SEED) UK multidisciplinary work experience within the Public and Third Sector** | **Internships**
(Framework in place 50/60 Credit bearing module 8-12 weeks in a organisation) |
| | **Work based dissertation**
(Framework in place Credit bearing module 8-12 weeks working on a community issue on campus) |
| | **Community Research: Job Centre**
(City Council Police, NHS) |
| | **Community Work Experience placements**
(Short medium, long term placements) |
| | **Language/Cultural Engagement**
(External community engagement on culture and language)
(Provision of Translation services) |
| **6. UK work experience within organisations** | **Internships**
(Framework in place 50/60 Credit bearing module 8-12 weeks in company) |
| | **Work based dissertations**
(Framework in place Credit bearing module 8-12 weeks working on a business project on campus) |
| | **Work Experience placements**
(Short medium, long term placements) |
| | **External work**
(Validation of experience and skills development to be assessed through a range of activities) |
| | **Work Experience placements**
(UK/China Working with organisations in China to place Chinese students) |
| | **Language/Cultural Engagement**
(External engagement in the provision of training workshops focused on culture and language)
(Provision of Translation services) |
References


Confederation of British Industry (2007), Shaping up for the future: The business vision for education and skills, London


Knight, J., (2003), *GATS, trade and higher education: Perspective 2003 – Where are we now?* London: The Observatory of Borderless Higher Education


Knight, P. T and Yorke, M. (2004), Employability, judging and communicating achievements, York, LTSN.

Moreland, N. (2005), *Work-related learning in higher education*, York, LTSN.


Sharma, Y., (2008), Be creative, deal with change to cut the ice globally, *South China Morning Post*, July 12th.


C4-7

Using Modular Approach in Teaching Inorganic Chemistry

Ma. Victoria D. Naboya, Ph.D.
Science Department
Leyte Normal University, Philippines
ma.victoria_delis@yahoo.com

Abstract

A truism often heard in teaching is that if you have not learned, I have not taught. A reasonable conclusion then is the importance of making instructional materials to help students learn. Modules hinge on the generally accepted fact that each child is unique and should develop to his optimum potential at his own pace. This study ascertained the level of students’ achievement in Inorganic Chemistry taught by using the modular approach. This study utilized the Pretest-Posttest Control Group design to establish comparability of the control and the experimental group along their performance, randomization was used. This was done by ranking students according to the GPA of science subjects taken and their reading comprehension skills. The mean pretest and posttest scores of the control group and experimental group were compared to establish the effect of modularized instruction on the students’ level of achievement in Inorganic Chemistry. These results on the level of achievement of the students taught using modular instruction and conventional method also show that there is a significant improvement in the achievement scores in each group before and after the experiment.

Keywords: learning modules, student achievement, teaching methods

Rationale

Education occupies a central place in Philippine’s political, economic, social and cultural life. Education is an ‘expectation builder’ and a ‘force multiplier’ (Rizavi, 2012). As an empowerment right, education is the primary vehicle by which economically and socially marginalized adults and children can lift themselves out of poverty, and obtain the means to participate fully in the life of their communities.

In this regard, the teacher has been tasked to prepare the young people to become useful, upright, and active citizens in the community. To be equal to the task, he needs to develop certain competencies and skills. This calls for a clear understanding of the teaching process, roles, and responsibilities concomitant to his position in the classroom. According to Navarro, et.al (2004), teaching is an exciting and rewarding activity, but like other professions, it is also demanding. Teachers across disciplines can make a difference by producing instructional materials for use in the classroom and also for reference of other teachers in their specialized areas in the academe (Bala, 2011).

It is observed that the shift to a more student-centered approach to learning will accelerate in the coming years (Lucido and Borabo, 1997). This move towards student-centered techniques of learning may not completely replace the teacher-institution-centered approach, but there will be a slow and steady increase in the use of student-centered learning strategies within the traditional educational system where the main developments in the student-centered learning are taking place.

As a major discipline in the tertiary education curriculum, Inorganic Chemistry is often regarded as a difficult subject, an observation that sometimes discourages learners from continuing with studies in chemistry (Sirhan, 2007). Chemistry has a paramount importance as a branch of science because it enables learners to understand the natural phenomena constituting the world. Because topics in chemistry are generally related to or based on the structure of matter, chemistry seems to be a difficult subject for many students. Chemistry courses commonly incorporate many abstract concepts which are central to advanced learning in the rest of the natural and physical sciences.
This strategy uses a self-instructional module which is a learning package that permits self-pacing. Modular instruction rests on firm and solid foundations. One of these is the fundamental educational philosophy which stresses that the student is the determinator in the whole instructional process. The belief that self-pacing is desirable is based on the generally accepted assumption that learners do not achieve at the same rate and do not learn at the same time. In this scenario, the teacher pays attention to the learner’s problem and is ready to extend help to answer individual questions. This modular approach will pave the way for a free interaction among the learners and the teacher.

Inorganic Chemistry course is designed for all third year Bachelor of Elementary Education (BEED) students as part of the General education subjects taken in one semester. This is an introductory course designed to inform the students of the basic laws, theories and principles of Inorganic Chemistry. Considering the topics of discussion in the study of Inorganic Chemistry, the contents of this study were not specifically elaborated since they were only subtopics.

One of the biggest problems in classrooms is disengagement of students. A truism often heard in teaching is that if you have not learned, I have not taught. A reasonable conclusion then is the importance of making instructional materials in teaching and learning Inorganic chemistry to help students learn the subject matter. This is also manifested by the poor results of various quizzes and tests given, solving chemically related problems and the inability of the students to actively participate in class discussion.

With these dilemmas, the researcher thought of making an instructional material that will help students learn Inorganic Chemistry concepts particularly a learning module. Learning cannot take place unless learners are willing to do so. There cannot be any learning unless a person is willing to invest attention. This instructional material is constructed to allow the learners to be actually involved in the learning process so that they will be able to internalize and promote learning by themselves. This was gathered by the researcher from years of actual teaching of the subject where she learned the difficulties of students in studying Inorganic Chemistry concepts. The highlight of this learning module is that learners are immersed in the learning process and they “personalize” the content, complete the tasks assigned, and learn the concepts by using it. The learning module was constructed by the researcher to ensure that teaching the subject will facilitate a learner-friendly interaction. The learning module was validated by experts in Chemistry as well as the experienced teachers handling Chemistry subjects for almost ten years already. They gave constructive comments and suggestions to improve the learning module.

Theoretical-Conceptual Framework

In the classroom, the teacher meets different types of learners with different learning styles. A fundamental principle in teaching is the “principle of individual difference,” first investigated by Galton as pointed out by Sarah E. Hampson and Andrew M. Colman (1995). Research studies consistently reveal that students differ from one another in terms of interest, personality traits, rate of learning, memory, motivation, and general intellectual ability. Recognition of the wide disparity in student characteristics has caused educators to move from the concept of group-based instruction on a common curriculum toward instructional programs which attempt to meet the individual differences and needs of students. The fundamental rationale underlying the adoption of individual methods is that it seems unlikely that one set of teacher behavior is the most effective for teaching everything to everybody. Instruction through modules has been found very effective for all levels of students and it is found more effective with regard to low achievers and slow learners (Reddy and Ramar, 1996). This modular instruction as a special method of teaching can be especially effective for slow learners since it enables the slow learners to adequately overcome their problems in learning.

Instructional Design (also called Instructional Systems Design (ISD)) is the practice of creating “instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing” (Hanly, 2009). The process consists broadly of determining the current state and needs of the learner, defining the end goal of instruction, and creating some “intervention” to assist in the transition. This theory can be applied in this study by considering the guidelines in the development of the learning modules.

The most common model used for creating instructional materials is the ADDIE Model which stands for Analyze, Design, Develop, Implement and Evaluate (Carey, 1992). There is also a utilized adaptation to the ADDIE model which is in a practice known as rapid prototyping. Proponents suggest that through an iterative process the verification of the design documents saves time and money by catching problems while they are still easy to fix. With these cited theories in the validation of instructional materials, this study is being proposed.
The development of the learning modules in this study took certain considerations to enable the students to have a maximum utilization of the materials to ensure no wastage of resources.

In the teaching-learning process, to find out it’s worth, a certain process should be performed. Just like in the creation of IMs, it has to be assessed in order to determine whether it is functional or not. Much attention has been given to student evaluations of teaching in higher education, and there are a number of studies that investigate the value of this practice (Giles, Bryce & Hendry, 2004). This type of evaluation is most often completed at the close of the course and is frequently linked to future tenure and promotion decisions. Hattie and Timperley (2007) emphasized that feedback is one of the most powerful influences on learning and achievement, but this impact can be either positive or negative. Its power is frequently mentioned in articles about learning and teaching, but surprisingly few recent studies have systematically investigated its meaning. This type of formative assessment may often be used by the teacher to make improvements in the course almost immediately for the purpose of improving student learning. Student feedback has been identified as one of the most important considerations when assessing teaching (Race, 2000), and research findings indicate that adult students are fairly good evaluators of their own learning (Giese, 2006). Therefore knowing what motivates students to provide this type of “just-in-time” anonymous feedback is an important question to investigate. Obtaining feedback from students provides teachers with opportunities to improve the classroom teaching and learning experience while it is occurring. The utilization of these materials would enable the teacher to measure the extent of its effect on the teaching-learning process particularly the learning of the topics included in the learning modules.

Statement of the Problem

This study ascertained the effect on academic achievement of students in chemical nomenclature in Inorganic Chemistry taught by using the modular approach in comparison with the conventional or traditional method. Specifically, it answered the following questions:

1. What is the profile of students in terms of the following:
   1.1 grade point average (GPA) in science subjects, and
   1.2 reading comprehension skills?
2. What is the level of achievement of the students taught using modular instruction and conventional method?
3. Is there a significant difference between the levels of achievement of the students in Inorganic Chemistry exposed to modular instruction and students taught in the conventional method?

Methodology

This is an experimental research that has utilized the Pretest-Posttest Control Group design. This design has included the experimental group which was carefully chosen through randomization procedures and the control group which was similarly chosen. The researcher stressed that the two groups were given the same pretests before the conduct of the treatment. This test allowed the researcher to determine if the two groups are really comparable before conducting the experiment. The experimental group was exposed to modular instruction while the control group was taught using the conventional method. Both groups were evaluated using a posttest. After the lessons on writing of chemical formulas and naming the chemical formulas, the posttest was given to both the experimental and control groups. The mean pretest and posttest scores of the control group and experimental group were compared to establish the effect of modularized instruction on the students’ level of achievement in Inorganic Chemistry.

The sixty-four (64) third year BEED students in two classes of Leyte Normal University enrolled in Inorganic Chemistry during the first semester, school year 2012-2013, served as participants of the study after establishing the comparability of the two groups. There were actually 101 students enrolled in two Inorganic Chemistry classes. There were 50 students in the MTh 9:00-10:30 and 51 students in the TF 9:00-10:30. In order to establish comparability of the control and experimental groups along performance, randomization was used. This was done by ranking first the students according to their GPA in science subjects taken and their reading comprehension skills. Starting from the top, the students were randomly assigned to the two groups by pairs. When all pairs were assigned to a group, randomization was used to identify the control and the experimental groups from among the two classes. The MTh class from 9:00 – 10:30 at SR 34 was assigned to the experimental group and the TF class from 9:00 – 10:30 at SR 34 was assigned to the control group. Students who were not chosen as participants of the study continued to be part of the group so they will also be exposed to the remaining topics included in the discussion. They did not have the knowledge that they were not part of
the group being studied but their participation was necessary to help the teacher compute their actual grade in Inorganic Chemistry.

The following research instruments were used to gather pertinent data. The Reading Comprehension test used the standardized Ballard and Tighe’s Idea Proficiency Test (IPT) 2004 instruments to determine the reading proficiency of the respondent. The IPT- English Reading Tests assess the literacy skills of the Limited Proficient Reader (LEP) students, also called English Language Learners (ELLs). The tests measure the English competencies necessary for ELLs to function successfully in the mainstream classroom and are not designed as achievement tests to measure students’ knowledge of the curriculum. For the general pretest/posttest, a 50-item test was prepared by the researcher and administered to the experimental and control groups before the actual start of the experiment to check whether these groups were really comparable. This test is composed of questions derived from the naming and writing of chemical formulas. The general pretest was similar to the general pretest. It was a sort of a summative test designed to evaluate the student learning chemical nomenclature module. The learning modules in Inorganic Chemistry was prepared by the researcher specifically the writing and naming of chemical formulas and the identifying, writing of chemical equations, identifying the type of chemical reactions and balancing chemical equations.

The development of the module included two steps: the preparation and validation of the module. In the preparation of the module, from among the different module formats, the researcher selected the appropriate format for the topics that the researcher had identified from the teaching-learning competencies and skills prescribed by Commission on Higher Education (CHED) for Inorganic Chemistry. The module followed the following format: title that identified and described the subject area; target population that described for whom the module was intended; overview that presented the entire module; objectives that were measurable and attainable by the students; instruction to the learner that were clear, brief, simple and specific; pre-requisite skills that specified what entry behavior and pre-requisites skills that enabled the learner to use it successfully; pretest that determined how much the learner has already known about the topic; pretest feedback and evaluation; learning activities that served as the heart of the module that specified different activities that students would undertake in order to achieve the specific learning objectives; posttest that determined how much the learner has learned from the module, and posttest feedback and evaluation that served as the key to correction and provided the performance level equivalent of the different scores obtained by the student. For the content validation of the module, the initial draft of the module was submitted to instructors in Chemistry for content validation. The module and the 50-item general pretest and posttest covering the topics in the module drafted was then tried-out on selected students in BSED major in Physical Sciences and Biological Sciences who have taken various Chemistry subjects as part of their major courses. The module was further revised based on the suggestions of the evaluations as well as the general pretest and posttest. The same questions in the pretest were given during the posttest to determine the achievement level of the students before and after exposing them to modular and the conventional method of teaching. Before the module was used in the actual conduct of the study, this was further revised based on the suggestion of the members.

Only one teacher, the researcher herself, handled both classes to prevent the teacher variable from affecting further the results of the experiment. In the introduction of the various topics in Inorganic Chemistry delivered in both experimental and control groups, certain things were considered to avoid contamination. It cannot be denied that students may have exchanged notes regarding the topics taught by the teacher. To avoid this, the teacher strictly observed the retrieval of the module after using to ensure that the concepts were not readily handed to the other group or they do not have access to them. Another measure to minimize or avoid contamination was following the strict schedule of imparting the topics to the groups so that, no groups were left behind. The participants were oriented about the schedule of the entire study and reminded to do all the activities diligently.

Various methods by which the variables were measured are presented namely for the profile variables. The profile variables included in this study are the grade point average in science subjects and the reading comprehension skills of the respondents. The data obtained from the experiment and those of the student profile variables included in this study are the grade point average in science subjects and the reading comprehension skills of the respondents. The data obtained from the experiment and those of the student profile were summarized and interpreted. For the grade point average (GPA) in Science subjects, the students were categorized based on their average grades in the first year and second year in general education science subjects taken during the first and second semester of school year 2010-2012 as reflected in the Registrar’s Office record following the Undergraduate Transmutation Table of Leyte Normal University. The following arbitrary scale was used namely 95-100 is 1.0 is excellent; 90-94 is 1.1 is very good; 80-89 is 1.6 – 2 is good; 75-79 is 2.6 - 3.0is fair; 70-74 is 4.0 is conditioned; and 63 below is 5.0 failed. For the reading comprehension skills, the respondents’ reading proficiency were assessed through a 55-item written test which will cover areas such as vocabulary, vocabulary in context, reading for understanding, reading for life skills, and language usage. The respondents were categorized as Non-English Reader (NER), Limited English Reader (LER), and Competent...
English Reader (CER) according to the scores they achieved. If the respondents obtained a score 48-55, they were considered Competent English Reader (CER); 34-47 as Limited English Reader (LER); and 0-33 as Non-English Reader (NER). The general pretest and posttest were similar and these were similarly scored and a common scale was used to interpret the results. These tests were given before and after the exposure of the students to the methods employed in teaching Inorganic Chemistry. The results of these tests measured the achievement level of the students in Inorganic Chemistry. The interpretations were based on the following arbitrary scale namely 49 – 50 excellent; 42 – 48 Very good; 27 – 41 Good; 19 – 26 Fair; and 18 and below Poor.

Descriptive statistics such as the mean, standard deviation, frequency counts and proportions were used to determine the comparability of the two groups before the actual experiment studied the data for the following entrance credentials, namely: general pretest, pretest in level of the two modules, GPA in Science subjects taken, and reading comprehension test were gathered. The paired samples t-test was used to determine if the posttest scores obtained by the students in both groups are significantly better than the pretest scores. The two-way analysis of covariance (ANCOVA) for unequal cells was used to test the hypothesis about the main effect of modular on the level of achievement of the students in chemical nomenclature.

Results and Findings

The profile of students taking Inorganic Chemistry particularly the grade point average (GPA) in science subjects of the respondents clearly indicates that the majority of them are good performers as shown in the Leyte Normal University Transmutation Table in the Undergraduate level. The results revealed that majority of them got a GPA of 1.6-2.5 considering that their GPA in science subjects was used as one of the bases for establishing the comparability of both the experimental and control group.

The reading comprehension skills of the respondents in both groups were also used as a factor for the matching. This further indicates that majority of the respondents are Limited English Readers (LER) based on the scores they got from the 55-item standardized Ballard and Tighe’s Idea Proficiency Test (IPT) 2004 instruments to determine the reading proficiency of the respondent. The IPT- English Reading Tests assess the literary skills of the Limited Proficient Reader (LEP) students, also called English Language Learners (ELLs). The respondents are categorized as Competent English Reader (CER) if they will get a score of 48-55, 34-47 as Limited English Reader (LER) and 0-33 as Non-English Reader (NER).

The level of achievement of the students taught using modular instruction and conventional method based on the results of the paired t-test between the mean pretest and mean posttest scores of the experimental and control groups suggests that the mean posttest score is significantly higher than the pretest score in both the control group and the experimental group. This further emphasized that the pretest and posttest of both the control and experimental groups indicating the median posttest scores in both groups are higher than the median pretest scores.

These results on the level of achievement of the students taught using modular instruction and conventional method also show that there is a significant improvement in the achievement scores in each group before and after the experiment.

There is no significant difference between the levels of achievement of the students in chemical nomenclature exposed to modular instruction and students taught in the conventional methods. The achievement levels in chemical nomenclature between the experimental and the control groups are not significantly different. The null hypothesis is accepted which states that there is no significant difference in the levels of achievement in chemical nomenclature exposed to modular instruction and students taught in the conventional method.

Conclusions

Based on the foregoing results the following conclusions were formulated:

1. The profile of the participants in this study suggests they have good GPA in Science subjects taken, and the majority of them are Limited English Readers;
2. The level of achievement of the students taught using modular instruction and conventional method also show that there is a significant improvement in the achievement scores in each group before and after the experiment.
3. There is no significant difference between the levels of achievement of the students in Inorganic Chemistry exposed to modular instruction and students taught in the conventional methods.

Recommendations

In the light of the results of this study, the following recommendations were formulated:

1. The reading comprehension skills should not be made as a variable in establishing the comparability of the experimental and control groups so that this will pave the way in determining the effect of their reading comprehension skills in the achievement level in chemical nomenclature.

2. The participants should be grouped from the top, average and bottom performers so that it would be easier to determine who really benefits more in the use of modular instruction.

3. The entire topics covered in Inorganic Chemistry should be fully taught so that the achievement level of the students in Inorganic Chemistry would be known further and more conclusively.

4. The students should be exposed to various teaching strategies in the classroom specifically the use of modular approach which would eventually help the various types of learners.

5. The learning modules should be utilized by teachers who are teaching Inorganic Chemistry specifically the chemical nomenclature for further improvement and refinement.

6. Develop other modules in Inorganic Chemistry.

7. A similar study be conducted incorporating other variables not investigated in this study.

References

Reddy, G. Lokanadha, et.al. (2006). Slow Learners: Their Psychology and Instruction. New Delhi, India: Kuswa Discovery Publishing House