The 4th Pre-University Conference

TEACHING & LEARNING
RETHINK. REDEFINE. REINVENT

27 AUGUST 2016
BANDAR SUNWAY
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It is with great pleasure and gratification that I write this Foreword for the 4th Pre-University Conference of Sunway College.

It was seven years ago when the academic teams across the different pre-university programmes at Sunway College collaborated to organise the institution’s 1st Pre-University Conference. That inaugural Conference in August 2009 carried the theme ‘Innovative Thoughts, Invigorating Teaching’. The objectives of that 1st Pre-University Conference, which continues until today, aimed at bringing together educators, academic administrators, researchers, and education technologists to discuss major trends, developments, and issues in education and provide opportunities for networking and collaboration in education.

Positive outcomes have led to subsequent Pre-University conferences being held in 2012 and 2014 with themes on ‘Learning Within and Beyond the Classroom’ and ‘Unlocking Borders in Education’ respectively. The vision born then of having a platform for secondary and post-secondary educators to share ideas and findings on effective teaching, learning, and assessments, and engaging in discourses to better understand the nature and needs of pre-university education continues until today.

In many ways, the thoughts and findings presented and discussed in past Pre-University conferences have impacted how pre-university programmes at Sunway College are being delivered today and how we prepare our students for their future endeavours. As such, I commend and thank all paper and poster presenters of this Conference for your participation and valuable contribution to the academic communities within Sunway Education Group and beyond. With the participation of fellow educators from
other institutions, we hope that the proceedings of our Pre-University conferences will also positively impact the teaching and learning in your secondary schools, and post-secondary and/or higher education institutions.

On behalf of the Executive Committee (EXCO) of Sunway College, I thank the organising committee and sub-committees of this year’s 4th Pre-University Conference and commend the able leadership of both Ms. Vanitha Satchithanadan and Mr. Lee Thye Cheong as co-chairs. Our immense gratitude goes to Puan Sri Susan Cheah, Patron of the Sunway College Pre-University Conference. We also extend special thanks to Dr. Lee Weng Keng, CEO of the Education and Healthcare Division of Sunway Group, and Dr. Elizabeth Lee, Senior Executive Director of the Sunway Education Group, for their ongoing support and guidance. Last but not least, my best wishes to all presenters and participants for a fruitful and meaningful conference to ‘rethink’, ‘redefine’, and ‘reinvent’ our teaching and learning.

CHENG MIEN WEE
Director of Pre-University Studies, Sunway College
Executive Director of Sunway International School
Sunway Education Group is a private enterprise owned and governed by the not-for-profit Jeffrey Cheah Foundation that operates with an enterprising spirit generating surpluses that are used to fund and invest back into education. We have done it so successfully that the Sunway Education Group as a whole is able to award to date RM210 million in total in scholarships and grants to deserving students. It exemplifies the spirit of corporate social responsibility (CSR) and most significantly it is consistent with the innovative spirit that is embraced and nurtured by the management, staff and students of Sunway Education.

This innovative spirit was evident from the start when Sunway College, the beginnings of Sunway Education, pioneered the concept of twinning programmes with foreign universities. We also started what became new trends in higher education. One of these was the setting up of foreign branch campuses and the other was the offer of dual-award degree programmes. We have so far been at the forefront of education development and innovation and have grown rapidly from 200 students in those early days to 25,000 today! And this modern campus facility we are operating from, has come about, thanks to the enterprising spirit that has spurred this growth!

For us to stay relevant and fulfil our mission, we have to constantly ask ourselves, what do we need to do next? As the CEO, I often ask myself what is our business model – what must we do to be able to continue to fund our developments and to step up our successes? As educators, what are the changes and improvements that we would need to make in terms of teaching and learning? I think there are no clear answers to these questions, and that is why we are challenged to ‘rethink, redefine and reinvent’ – the theme of this Conference.
Technology has impacted education in a big way. Teachers may well find themselves having to learn and relearn technology-enabled learning methodologies so as to be one step ahead of their students. But what and how much technology should we embrace? Is there any trade-off with the human teacher? Is it likely for technology, in various forms, such as the digital classroom or MOOC (Massive, open, online courses), for example, to one day replace the traditional student-focused classroom? What shall we do in the meantime, and in anticipation of that eventuality, if it arrives?

Presently, I believe teachers are increasingly regarded as facilitators. Beyond teaching students to ‘train the mind’ and also pass exams, they are required to engage with them, fostering creativity, empathy, teamwork, critical thinking, and ensuring that they develop these skills and more. Added to these demands is the pressure of an educational framework that is getting increasingly multidisciplinary. How can teachers individually and collectively prepare themselves to meet this onslaught?

Perhaps another area for educators in higher education to be concerned with is the employability or unemployability of their students. A MOHE survey found that last year nearly 230,000 or about 24% of graduates had not secured employment three months before convocation. Is it the teachers’ role to ensure that the students are well equipped for life after school – in other words, employment, for the majority of students? Clearly, an employable individual suggests that he has learnt to apply knowledge. By extension, it implies that synthesis of knowledge had taken place while he was still at college or university so that he is immediately employable upon completing the course of study. Whether this outcome is achieved through links with industry or processes of internship, etc., decision makers in education must think ahead.

Being adaptive and indeed predicting the future is necessary now more than ever, because, many think even the jobs we prepare our students for may not be available in not so far a future – they may simply disappear, replaced by machines and the changing environment!

As the management guru Peter F. Drucker once said, ‘One cannot manage change. One can only be ahead of it.’

On that note, it is my pleasure to invite you to rethink, redefine and reinvent to stay ahead.

DR LEE WENG KENG
Chief Executive Officer
Education and Healthcare Division, Sunway Group
Lessons in the classroom should reflect lessons in life. Lessons which allow some experiment within the safe confines of a teacher’s nurturing and guidance will go a long way in learning values, sharpening skills and developing character, which will in turn contribute to nation building and the global sustainability we all crave.

An educator’s job is a calling. It is a life-changing task which involves both the teacher and the student, a bond and experience which can last a lifetime.

Lessons in the classroom should reflect lessons in life. Lessons which allow some experiment within the safe confines of a teacher’s nurturing and guidance will go a long way in learning values, sharpening skills and developing character, which will in turn contribute to nation building and the global sustainability we all crave. It all starts in the classroom with you and your student.

In a truly rapidly changing world, where we are tasked with the future in our very hands, we must take time to take stock of our very tasks at hand. Take heed of the theme of this Pre-University Conference – Rethink. Redefine. Reinvent.

At this Conference I hope you will have the opportunity to reaffirm your role, reevaluate your goals and reassess your teaching and learning methods. Take the time to share your knowledge and experience and to learn from one another. After all, the purpose of education is not only to teach but also to learn, improve our knowledge, skills and disposition. These are critical steps for us as educators towards improving student’s learning and achievements. I hope through this Conference, you will be further motivated and empowered in your passion and dedication to continue your role as teachers who inspire.

**DR ELIZABETH LEE**
Senior Executive Director
Sunway Education Group and Sunway University
On behalf of the 4th Pre-University Conference Committee, we welcome you to ‘Teaching & Learning: Rethink. Redefine. Reinvent’ at Sunway College, Kuala Lumpur.

In the last few decades, new communication technologies have compelled institutions across industries to rethink, redefine and reinvent themselves to survive. As we usher in our new generation of digital natives, we have to proactively rethink how to engage and redefine our new role in educating our students. We believe our guest speakers and presenters will be able to inspire us to reinvent ourselves as we continue to educate our students.

This conference was introduced in 2009 with the aim of providing a platform to encourage educators within a post-secondary school setting to research, present and publish their work. Today we are pleased to note that many of our academic colleagues have embarked on this journey, amid their tight teaching schedule. We are proud to inform that many have used these Pre-U conferences to springboard themselves to international conferences.

We would like to say a big Thank You to all our presenters for sharing your ideas and findings at our Pre-U Conference. We would like to acknowledge the continued support of Sunway College Johor Bahru and Monash College, Melbourne.

We also would like to express our gratitude to all our reviewers from Monash University, Sunway University and Sunway College. Your support in mentoring is much appreciated.

We extend our thanks to Dr Eva Wong, Director, Holistic Teaching and Learning, Hong Kong Baptist University and Ms Rahayu Ramli, Education Program Manager, Google.
Malaysia for accepting our invitation to deliver the keynote address and plenary session respectively.

We also would like to thank our generous sponsors with a special mention of appreciation to our Patron, Puan Sri Dr Susan Cheah for her immeasurable support. We also would like to note our gratitude to Dr Lee Weng Keng, CEO of the Education and Healthcare Division of Sunway Group, and Dr Elizabeth Lee, Senior Executive Director of Sunway Education Group for their support and encouragement.

A special Thank You to our Pre-U Conference Advisors, Ms Cheng Mien Wee and Ms Ruma Lopes for your encouragement, guidance and support.

Enjoy your participation, engage and be inspired by the discourse!

VANITHA SATCHITHANADAN
& LEE THYE CHEONG
Chair & Co-Chair of Organising Committee
The 4th Pre-University Conference

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**Agalya Perumal**
Agalya Perumal is a senior lecturer teaching Information and Communication Technology in the Monash University Foundation Year programme. She graduated with a Bachelor’s degree from Middlesex University UK, and Master’s degree from the Open University, KL. She has made significant contributions to Sunway College through projects undertaken by her programme and has spearheaded similar improvements for other programmes. She is also currently working with the Academic Quality Office and ITS, providing training and support in the use of technology in education.

**Amanda Lela Faye Molnar**
Amanda Molnar is a qualified professional accountant, having received her Chartered Professional Accountants (CPA), Certified Accountant (CA) designation in Toronto, Canada. Her passion to teach has led her to be a business and accounting teacher. She leads the technology-coaching programme at Sunway International School. She approaches teaching and learning through the lens of democratic-critical pedagogy and social justice.

**Angelina Anne Balasundaram**
Angelina is currently a Chemistry lecturer at Sunway College Johor Bahru. She is a graduate in Chemical Engineering from UTM. She is an experienced educator who has ventured into administration, editing and teaching of Chemistry and other related sciences. This has fuelled her interest in research on an array of areas in her field of study.

**Carly Damen**
Carly Damen has a Bachelor of Arts/Bachelor of Education from Queensland University of Technology and is currently studying for her Master of Education at the University of Melbourne. While teaching, Carly has worked on many blended learning projects aimed at engaging students and extending their learning opportunities.

**Chong Yee Ting**
Chong Yee Ting is a lecturer at Sunway College (KL). He teaches A-level Chemistry and is involved in creating e-learning material and education research. He previously lectured at Universiti Tunku Abdul Rahman and worked as a product Research and Development engineer with a Japanese multinational company. He is currently an MSc candidate at the University of Malaya.
Chua Ching Hao
Chua Ching Hao is a Mathematics lecturer in the Pre-University department at Sunway College Johor Bahru. He has a Bachelor’s and Master’s degree in Engineering. He decided to pursue a career in education because he believes that education is the key to success in life.

Dionne Yeng
Dionne Yeng graduated from the University of Malaya with a degree in Languages and Linguistics. She then worked in Michigan State University as a Fulbright scholar. Currently, she holds the position of senior lecturer in the Foundation Programme of Sunway College KL.

Jason Soh Chiaw Ker
Jason Soh Chiaw Ker is an Accounting and Finance lecturer in AUSMAT Sunway College KL who graduated with a Bachelor of Commerce, majoring in Extended Accounting from the University of Sydney. He is currently pursuing a Master of Teaching and Learning at Taylor’s University. He is also a member of Beta Gamma Sigma, an international honour society serving business programmes accredited by AACSB International.

Kavi Vitya Kathiravelo
Kavi Vitya graduated as a chemist from the National University of Malaysia (UKM) and currently teaches Chemistry in the Monash University Foundation Year (MUFY) programme. She brings in the discipline of yoga into her approach in learning strategies in teaching.

Krishnaveni Sritharan
Krishnaveni Sritharan’s experience is both comprehensive and varied. With a Bachelor in Law and Masters in Management, her illustrious career has developed throughout the 20 years with lecturing, training, administrating and developing programmes. She has an engaging character, charismatic personality and is considered by many as an interesting presenter and trainer.

Lawrence Tang Eng Loong
Lawrence Tang Eng Loong is a Mathematics lecturer in the Monash University Foundation Year (MUFY) programme, Sunway College. He has been teaching in the programme for over 8 years. His research interest is related to self-regulated learning, psychometric properties, and mathematical problem solving.

Leong Mei Kuen
Leong Mei Kuen holds a BSc (Hons) in Economics and Management from London School of Economics. Having been in the education industry for 15 years, she is currently managing the Business Diploma and Financial Programmes Department in Sunway College Johor Bahru. She is also teaching in the Certified Accounting Technician programme.
Meera Rada Krishnan
Meera Rada Krishnan graduated from the University of Malaya with a Bachelor of Science (Hons) in Microbiology, after which she continued as a research assistant and tutor at the same institution. She has for the past 8 years been with Sunway College Johor Bahru as a Biology lecturer under the Pre-University Department. Meera motivates and triggers students to explore learning experiences with an open and analytical mind.

Mia Olerhead
Mia Olerhead completed a Bachelor of Arts (Hons) at Monash University and a Master of Teaching (Secondary) at the University of Melbourne where she focused on citizenship education. Since starting her career at MUFY, she has been involved in numerous projects, including several blended learning initiatives.

Na-Dhira Kamal Ridzwa
Na-Dhira is an Accounting lecturer in Sunway College Johor Bahru. Coming from a corporate background gives her an added advantage in practical knowledge in accounting practices. She holds a degree in Accounting in Business and is currently pursuing the final stage of professional ACCA qualification.

Ng Kent Hoo
Ng Kent Hoo is a Mathematics lecturer at Sunway College Johor Bahru. He completed his Bachelor’s degree and a Master’s degree in Biomedical Engineering from UTM. He also obtained his second Master’s degree in Sciences (biomedical engineering) from Ilmenau University of Technology. He ventured into teaching due to his passion for educating young minds. He is an active researcher in the field of biomedical engineering.

Nik Mohd Naqiuddin
Nik Mohd Naqiuddin is a lecturer with Sunway Foundation Programme (SCKL). He started his career as a financial auditor in PriceWaterhouseCoopers. Due to his deep interest in education, he pursued a certification in teaching to enhance his teaching skills and started his job as a lecturer. His current research interest is in education technology and curriculum development.

Paul Davidson
Paul Davidson is a senior lecturer at Sunway College (KL). He graduated with an MSc (National University of Singapore), and Post-Graduate Diploma in Education (National Institute of Education, Nanyang Technological University, Singapore). He teaches A-level Biology and is actively involved in training, creating e-learning material and conducting educational psychology research.
Rachel Chin May Ying
Rachel Chin May Ying is a graduate from the National University of Singapore with a Bachelor of Science (Statistics). She has also pursued a Masters in Business Administration from the University of Southern Queensland, Australia. Her passion lies in guiding students to appreciate the importance of Mathematics in their daily lives. She has 15 years’ experience in the education industry.

Roslin Mary Allappan
Roslin Mary has experience working as a lecturer in several private colleges, teaching Mathematics and Statistics for various foundation and diploma courses. She holds a Bachelor of Science and Computing (Ed), and Master’s degree in Applied Statistics. Currently she is attached to MUFY programme at Sunway College, Kuala Lumpur.

S Kohilam Subramaniam
S Kohilam Subramaniam is a graduate from Universiti Sains Malaysia with a Master of Arts (Communication) and a Bachelor of Communication (Hons). She has been with Sunway College for 4 years.

Saarah Mariee Arokeeya Samey
Saarah Mariee is an Accounting lecturer in Sunway College Johor Bahru. Saarah has a BSc. (Hons) in Applied Accounting. Her passion lies in moulding students by facilitating student-centred learning.

Tamilarasi B Tamil Selvam
Tamilarasi B Tamil Selvam is a Chemistry lecturer in the Australian Matriculation Programme, Sunway College (KL). She holds a Bachelor’s degree in Microbiology and a Master’s degree in Chemical and Process Engineering from National University of Malaysia (UKM).

V.S. Giita Silverajah
V.S. Giita Silverajah is a Chemistry lecturer in the Australian Matriculation Programme, Sunway College (KL). She received her Bachelor of Science (Hons) in Industrial Chemistry from Universiti Malaysia Sabah (UMS) and Master of Science (Polymer Chemistry) from Universiti Putra Malaysia.

Wan Suriatty binti Mazlan
Wan Suriatty binti Mazlan started working with Sunway College as a Chemistry lecturer at Monash University Foundation Year (MUFY). She graduated from MARA University of Technology (UiTM) with a Bachelor of Science (Hons) in Applied Chemistry. She achieved a first class honours in her Master of Science in Civil Engineering (Environmental Engineering) and is currently pursuing a PhD in Civil Engineering (Water Treatment Research).
Charity Yang, Eidihmary Macintyre, Uma Devi K Sabanayagam and Wijeyamuni Angela Soyza
Charity Yang, Eidihmary Macintyre, Uma Devi K Sabanayagam and Wijeyamuni Angela Soyza are lecturers with the Monash University Foundation Year programme, teaching English and Globalisation. Between them, they have a combined experience of more than 50 years of teaching experience. Their primary research interests are in language and linguistics.

Gloria Sivakumaran and Shivani Ramanathan
Gloria and Shivani are English Language lecturers at the Sunway Foundation Programme, SCKL. Gloria graduated with a Bachelor of Arts in English Linguistics and Masters in Applied Linguistics from Universiti Putra Malaysia. Shivani graduated with a degree and Masters in Literature from Universiti Kebangsaan Malaysia.

Vimala Devi Balakrishnan and Priya Sulamuthu
Vimala is an English lecturer at Sunway College Johor Bahru and Priya is a lecturer of compulsory subjects at Sunway College Johor Bahru. Vimala’s field of interest is incorporating technology in language learning, effective feedback and learner motivation and Priya’s research interest is in leadership, learner motivation and human resource management.
21st Century Education: Where are we now?

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Abstract

Higher education institutions today have started to respond to the needs of 21st century education. There is a growing trend among higher education providers who believe in providing meaningful and relevant education to benefit students and to prepare them for an increasingly globalised world. Making use of emerging technologies, they make education exciting, stimulating, fun and enjoyable. The challenge that many educational institutions continue to face today is how to make this paradigm shift. How do we move from the way we know education to be, to how education should be? How do we break the mould to becoming something flexible, creative and challenging? An education system that responds to societal needs is a system that will contribute to the future growth of the nation and in view of the various technological developments, the incorporation of technology to support the provision of a learner-centric environment is needed more today than ever before. This paper seeks to get the stakeholders’ views in terms of their perception towards 21st century teaching and learning. The findings of this paper will unveil the stakeholders’ acceptance towards new approaches to teaching and learning in the current century.

Keywords: 21st century education, pedagogy, technology, teaching and learning

Introduction

The recent development of education technology has had an impact on the higher learning institutions, especially for pre-u level in their pedagogies approach. Some students at this level are still not familiar with 21st century education terms like blended learning and student-centred learning. Most of them are still migrating from secondary level to tertiary level of education. Some might find the new approach to be very
interesting while some may not. This paper tries to get the stakeholders’ views, namely students and lecturers’ perception towards 21st century education and the challenges in applying the new approach of education.

**METHODOLOGY**

The study was conducted on Foundation in Arts (FIA) students in Sunway College. Random questionnaires were distributed to students. They were given about 10–15 minutes to complete the questionnaires. The survey consisted of ten-point Likert Scale items which supplied the quantitative data for the study. The data collected was subjected to data analysis and results were planned for presentation.

A focus group consisting of six participants was created to gather the feedback from lecturers who implemented 21st century education in class. Four open-ended questions were asked to gather their feedback on the effectiveness and challenges of implementing 21st century education in class. The findings from the group were collected as qualitative results for presentation.

**RESULTS AND DISCUSSION**

Students reported that they did not enjoy new ways of education. Most of the students felt that learning only takes place in the classroom. Four out of the six students preferred chalk and talk techniques in class rather than technology-based instructions.

In another view, lecturers felt that 21st century education was a bit time consuming since they did not have proper training and a limited infrastructure to support it. 83% of the lecturers gave up using education technology after the first attempt due to the lack of response from students. There were also many complaints by students at the early stage of implementation.

**CONCLUSION**

Overall, the study finds that we are still in the early stage of implementation of 21st century education. Many issues and challenges are faced in the implementation of this new technique. The IT literacy among students and lecturers will be primary attention to ensure the success of 21st century education. Content and curriculum development needs to be revised to ensure that technology-based learning becomes meaningful to students and lecturers.
REFERENCES


A VIRTUAL CLASSROOM THROUGH SOCIAL MEDIA: A STUDENT’S PERSPECTIVE

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Abstract

There has been a surge in technology in recent years which has spilled over to the education industry. This technological boom is especially evident with the use of various social media which encompasses Facebook, WhatsApp, search engines and electronic devices in which the traditional method of chalk and talk has steadily been replaced with an array of devices. Blended learning is a way of meeting new challenges and tailoring learning and development to the needs of individuals. It is targeted at successfully integrating an E-learning environment, which incorporates various social media with the traditional teaching methods and thus combining the useful methods of both aspects as described by Thorne (2003). In retrospect, in the face of the parallel boom of technology in every other industry, blended learning has become an emerging pedagogy in the field of education which has taken many classrooms by storm and thus social media has become the new “toy” in classroom delivery. This is because this method of learning brings the physical classroom and elements of virtual learning through the usage of social media together (Finn and Bucceri, 2004) and targets at attaining a fine balance between the two. The crux of the researchers’ study will be directed at attaining the perspective of students in Sunway College Johor Bahru on the application of social media in the classroom. The study will encompass the technological items that are useful and necessary in the classroom setting and those that will benefit and facilitate the teaching and learning process. In line with this, the research questions for this study will be focused on the type of social media and its effectiveness. After the preliminary study, it was noted that the acceptance of different social media varied. There were
some social media like Facebook and phone applications like WhatsApp that were not highly favoured as a teaching tool in class. However, search engines, namely Google and Mozilla were deemed highly favourable tools to be used. This acceptance also had variance when studied across the programmes.

**Keywords:** blended, learning, social media, pedagogy

**INTRODUCTION**

Every day, over 175 million messages are posted on Twitter, 250 million photos are shared on Facebook, and about 2 billion videos are watched on YouTube (Bullas, 2012). Williams, Bland, and Christie (2008) define blended learning as a combination of traditional face-to-face learning and distributed learning, the latter of which is an instructional model that allows lecturers, students, and content to be in different locations by interaction through social media. In the study conducted by Grandzol (2004), he finds no difference in the responses from the students to blended learning, in which social media was incorporated in the classroom with comparison to the traditional delivery methods. In the same light, he found that learning outcomes had inconclusive evidence of improvement. However, the academic performance at a certain level of study might not be the key indicator to the performance of a student. Trasler (2002) on the other hand, mentions that the keys to motivating a learner are flexibility, variety and adaptability. These will be the major contributors towards attracting a learner and hence retaining his or her interests. Apart from these, students generally come from different backgrounds and learning aptitudes. One of the main features which was expounded by Graham (2006) and Saltzberg and Polyson (1995) is that blended learning has the ability to cater and accommodate different learning styles and needs. With this, it enables students to learn in a more interactive environment in which collaboration is given priority. Students are given more space and are able to do work according to their own pace. This reduces the regulated environment of the traditional classroom in which lectures are administered without any room for other channels of interaction. Furthermore, it was compounded by Yen and Lee (2011) that the usage of social media manages to combine both the best of face-to-face education and thus is predicted to emerge as one of the predominant models of the future.
METHODOLOGY

This study focused on the responses and feedback of the pre-university students on the application of social media as a new approach of teaching. The study was conducted by answering a questionnaire which was adapted from Blended Learning: An Institutional Approach for Enhancing Students’ Learning Experiences, MERLOT Journal of Online Learning and Teaching Vol. 9, No. 2, June 2013 by Joanna Poon and Evaluating Student Satisfaction with Blended Learning in a Gender-Segregated Environment, Journal of Information Technology Education: Research Volume 11, 2012 by Mahmoud Abou Naaj, Mirna Nachouki and Ahmed Ankit Ajman. The questionnaire was divided into three sections; the first section collected data on the respondents demography, the second section was to gather data on the familiarity of the respondents towards social media and the third section employed the Likert Scale for the first part in which there were two main subsections to individually gather data on the two elements studied; (a) students acceptance towards social media, and (b) the importance of social media in enhancing their learning process. The final part of this section comprised four open-ended questions which allowed respondents to give responses on their views of social media in the classroom. The questionnaires were distributed to 50 pre-university students across three programmes which included A-Levels, Australian Matriculation (Ausmat) and Monash University Foundation Year (MUFY). The purpose of choosing three different programmes was to receive different perspectives from the respondents. The limitations in this study were that the instructors for each course varied and thus the respondents’ exposure to social media in class also varied. Apart from that, the study was across a diverse subject spectrum and thus it was not targeted at a particular student group.

RESULTS AND DISCUSSION

Based on the analysis, it was found that most of the respondents had a good knowledge of social media applications and usages which was seen across the three programmes. This did not put them at a disadvantage when they were exposed to social media as educational tools in the classroom. It was also noted their usage of social media varied and they were well experienced in using various social applications in their own personal space. However, their acceptance of social media in the classroom and outside the classroom also had differences. They were more open to accepting social media as a means of educational instruction outside the walls of the classroom and most of them deemed it kept them connected to the educator. However, the respondents’ acceptance of social media in the classroom were limited as social media, namely WhatsApp and Facebook were poorly acceptable as an education tool in the classroom. This acceptance was more significant for search engines and electronic devices.
CONCLUSION

In conclusion, the responses from different programmes were different. The study found that the acceptance of social media in class is higher from the students whose programme had coursework or assignments compared to the programme with more examinations. This phenomenon was explained by the fact that communication is very important when carrying out coursework-based programmes in which the students may receive a fast response from the educators or the educators may send spontaneous feedback to the students. However, for the “examination”-centred programmes, the application of social media has become relatively redundant. The students expect face-to-face communication compared to social media-based instruction. Therefore, the application of social media in the classroom should focus on the background of the students as the primary factor.

REFERENCES


THE HEART OF TEACHING: FLIPPED LEARNING

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Abstract

Ever-blooming technological developments have given rise to the use of blended learning classrooms (Strayer, 2012). The flipped classroom employs the use of asynchronous video and worksheets as homework out of the physical classroom, and then conducting interactive, individual or group-based problem-solving activities in the classroom (Bishop and Verleger, 2013). Lectures are moved outside the classroom whereas learning activities using practice with concepts are conducted during the class period (Strayer, 2012). A unique combination of the constructivist ideology with active, problem-based learning and instructional lectures founded upon behaviourist principles are represented (Bishop and Verleger, 2013). This new shift of classroom paradigm fosters collaborative and cooperative active problem-based learning (Prince, 2004) as well as better relationships, greater student engagement and higher levels of motivation. Furthermore, instructional videos act as powerful tools for educators to limit content and share resources (Stannard, 2012), while creating a more holistic learning experience. Ultimately, a learning environment that is sustainable, reproducible and manageable can be created, enabling students and educators to assess mastery and differentiate each lesson when remediation is requested or deemed necessary. Educators have the flexibility to cater to what is in the best interest of each student in the classroom (Bergmann and Sams, 2014), thus bringing the heart back into teaching. This study evaluates the impact of flipped learning on student performance and examines the students’ assessments of this approach. 48 pre-university students from the Cambridge GCE A-Level Programme were sampled. 83% of these students showed improvement in their concept understanding while over 80% of the students were more open to cooperative learning and innovative teaching methods. These findings indicate that the flipped learning approach contributes constructively to the stability and connectedness of classroom learning communities.

Keywords: flipped learning, cooperative learning, empowering students, innovative classroom methods
INTRODUCTION

The revolutionary idea of flipped learning is to allow students to watch concept-based videos before class at a time, speed and frequency of their choosing. Essentially it means the ‘lecture’ is studied out of the physical classroom, while the ‘homework’ is done in class itself. The flipped-classroom model offers the possibility of expanding the learning process and intensifying the students’ interaction with the scholastic material. In addition, it promotes a sense of control and flexibility in carrying out the learning process (Kurtz et. al., 2015). Students are encouraged to summarise their learning and then come to class with the appropriate questions for the educator to address any misconceptions before they are practiced and applied incorrectly in the hands-on problem-based activities that follow. The effectiveness of the online materials can be evaluated too, and can be modified when too many similar misconceptions occur (Bergmann and Sams, 2012).

METHODOLOGY

This study was conducted on 48 pre-university students from the Cambridge GCE A-Level Programme of Sunway College Johor Bahru. Before each class, the students were provided video links on scholastic topics that would be discussed in class. The first five to ten minutes of the class involved clearing of students’ misconceptions, after which they are tasked to link the online video to the course materials in class by participating in problem-based hands-on activities or worksheets. At the end of the duration of study, the students were surveyed on their perception of the flipped classroom model. They were also assessed using a written test comprising of conceptual and application questions.

RESULTS

Throughout the duration of this study, gradual improvement of students’ concept understanding and willingness to clear misconceptions was observed. Their queries also become more detailed, indicating enhanced analytical skill development. Over time, there were less misconceptions and more active participation in problem-based activities. The worksheets handed in were also answered in a more thorough and correct manner, indicating improved logical reasoning and application of the concept. Weaker students also were more open to work in a group and contribute constructively in activities. Overall, from their test results, 83% showed improvement over their results of the previous test using traditional classroom approach.
DISCUSSION AND CONCLUSION

This study showed that flipped learning does enhance the learner’s performance and empowers them in their learning process. There is an increase in their level of interest, involvement and confidence in their ability to understand the learning material (Bergmann & Sams, 2014). In addition, since students do well and do not need to repeat their exam, it reduces their education cost which is another perk (Goertzen, 2014). In conclusion, the flipped learning approach, when carefully structured and leveraged, shows great promise in getting through to students of varying levels of performance (Bishop and Verleger, 2013).

REFERENCES


Learning itself has an autonomous nature. The Cognitive Learning Theory explains that learning is an active, self-constructed, and intentional process (Bereiter & Scardamalia, 1989; Lambert & McCombs, 1998; Sinatra, 2000). Autonomy support is the interpersonal behaviour teachers provide during instruction to identify, nurture, and build students’ inner motivational resources (Deci & Ryan, 1985; Reeve, Deci, & Ryan, 2004).

In switching from teacher-centred learning towards autonomy supportive learning, higher education in Malaysia is moving forward to apply practices that have been shown to support motivation and achievement of students. However, in the context of Malaysian education, the autonomy supportive method of teaching can be problematic as it is a drastic change from the current educational experience in Malaysian public schools where learning is mainly a teacher-centred process. In 2002, the Smart School system in Malaysia was implemented in only 87 selected schools nationwide. The Smart School concept was set to be different as it highlighted changes in the teaching and learning process, which was from teacher-centred to student-centred, and moving away from memory-based learning to “an education that stimulated thinking, creativity and caring” (M.O.E. Malaysia 1997).

This paper is to examine the perception of students during the transition from a teacher-centred learning environment to an autonomy supportive learning environment. It is aimed at finding out Malaysian public school students’ acceptance towards autonomy supportive practices in higher education.

**Keywords:** autonomy supportive, motivation, teacher-centred
INTRODUCTION

According to the findings of a recent study entitled, “Investigating readiness for autonomy: A comparison of Malaysian ESL undergraduates of three public universities”, conducted by Thang Siew Ming and Azarina Alias (2006), the majority of UKM, UPM and OUM undergraduates favoured teacher-centred learning environments. This finding therefore raises the important question of how Sunway College students feel about learning in an environment in which autonomy supportive learning is becoming the norm.

This paper will allow us to find out further if Malaysian pre-university students are likely to adapt to the transition from teacher-centred environment (with prior experience in primary and secondary education) to autonomy supportive environment (in tertiary education) easily. The scale of acceptance will give us a better understanding of students’ perception of autonomy supportive environment and assess its effectiveness on students’ learning motivation.

METHODOLOGY

In this study, the participants are pre-university students in Sunway College, between the ages of 17 to 19 who are from the Malaysian public school system (not from the 87 selected schools that implemented the Smart School system) selected randomly from all pre-university programmes. The questionnaire is set using the self-determination theory as a framework. It will seek students’ affinity for various teaching and learning practices (including both autonomy supportive and non-autonomy supportive practices) and level of motivation using a numerical rating scale. The data can then be analysed based on students’ feelings towards various teaching and learning practices. The data will also determine which practices in an autonomy supportive environment that students find most challenging and which practices are best in improving student learning and increasing their intrinsic motivation. The data will also show which teacher-centred learning practices that students value most. Quantitative data from the questionnaires will be tabulated and presented in percentages and frequencies.

CONCLUSION

From the data collected, the teaching style that Malaysian pre-university students find most effective are a mixture of autonomy-supportive and non-autonomy supportive teaching styles. Therefore, we can assume that Malaysian pre-university students (with prior education in public schools) do not perceive autonomy-supportive learning to be 100% effective. They are still trying to adapt to the autonomy-supportive learning and teaching style.
REFERENCES


THE EFFECTIVENESS OF THEME STUDIES IN DEVELOPING CRITICAL THINKING SKILLS AMONG MUFY STUDENTS

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Abstract

The purpose of this research is to discover whether theme studies in MUFY English Unit 2 helps students to develop their critical thinking skills. The study will be carried out among second semester students in the Monash University Foundation Year programme at Sunway College.

Keywords: theme studies, Bloom’s Taxonomy, critical thinking, English
INTRODUCTION

Critical thinking is defined as the process of perceptive discernment of problems, questions or issues to discover what it is made of, to understand and to evaluate it positively or negatively. There are three different approaches to critical thinking with the first two being the philosophical and cognitive approach and the third being the education approach which uses Bloom’s Taxonomy as a measure to gauge critical thinking skills (Lai, 2011). Theme studies can be defined as the exploration of specific ideas, issues, topics, persons or content area. It uses mainly reading and writing as a means for learning (Penny, 1993). Theme studies is a component that has been designed into the curriculum used by the Monash University Foundation Year to build and enhance thinking skills through the study of specific literary genres that are linked by a specific theme. Critical thinking and thematic studies cover all six levels of the cognitive domain of Bloom’s Taxonomy and hence this paper aims to analyse the effectiveness of using theme studies in developing critical thinking skills amongst students.

THEORETICAL FRAMEWORK

The main theory used in this study is based on Bloom’s Taxonomy. Bloom’s Taxonomy is a process-oriented model that is used by educators to build and develop students’ thinking skills which are needed in the context of this study. There are six cognitive levels of learning: knowledge (most basic), comprehension, application, analysis, synthesis and evaluation (highest order) (Bloom et al., 1956). Hence, this study hopes to capture the development of students’ critical thinking skills in Bloom’s cognitive domain. Literature and thematic-based reading play a crucial role in the development of critical thinking. Students have to recognise patterns in and within a text, recall experiences and link them to their personal experiences as well as other texts that they are studying in order to enhance their ability to critically approach a text (Institute for Academic Excellence, 1997). As they are doing this, students need to show they can distinguish and understand factual statements from opinions, direct meanings as opposed to indirect meanings and the intent of the writer and/or narrator, and to be able to look out for details connected to the central theme. Moreover, students have to provide reasons to explain the relationship or the connectivity between the events or actions, to search for any inferred connections to the text, to be discerning of the various outlooks given in the text, and to make morally sound and unbiased decisions to practice and use what they have studied in various other aspects in their life (Brunt, 2005; Facione, 2007; Halpern, 1998; Lazare, 1987 as cited in Tung & Chang, 2009).
METHODOLOGY

Sample Group

The population of this study consists of second semester students between the ages of 17 and 19, under the Monash University Foundation Year programme. A selection of a total of fifty to one hundred students from English Unit 2 classes will be totally random for this study. Hence, the diversity of students would be ensured as they would come from various countries, backgrounds, cultures, levels of education and proficiency levels.

Method of Data Collection

A questionnaire of 17 statements related to the cognitive ability and development of students will be administered. The statements will have a close link as to what extent they have developed their critical thinking ability through the theme studied in English Unit 2 which is “Identity and Belonging”. Some examples of statements that students will be given are:

1. I was able to define terms related to the theme of identity and belonging. (Knowledge)
2. I was able to understand and summarise the storyline of the texts studied. (Comprehension)
3. I was able to infer the meaning formed through the figurative language used with regards to the theme of identity and belonging. (Comprehension)
4. I was able to identify with the issues of identity and belonging that some or most of the characters faced. (Application)
5. I was able to analyse the elements that impacted and determined the characters’ sense of identity and belonging. (Analysis)
6. I was able to combine the similarities in the experiences that affected the identity and sense of belonging of the different characters in the variety of texts studied. (Synthesis)
7. I was able to justify why certain characters experienced, and did not experience change in their identity and sense of belonging, particularly in my writing. (Evaluation)

These statements are categorised based on the six levels of the cognitive domain presented in Bloom’s Taxonomy, that are Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. The instrument used to measure students’ critical thinking ability through the use of the statements above is the Likert Scale – 1 Very Poor, 2 Poor, 3 Average, 4 Good, 5 Very Good. The answers gained will be analysed as totals or averages to multiple statements categorised under a specific cognitive domain. This questionnaire will be administered after students have discussed and analysed all the core and supplementary materials selected for the theme of identity and belonging.
RESULTS

Findings: Knowledge

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<td>Very Good</td>
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- Statement 1 – I was able to define terms related to the theme of identity and belonging.
- Statement 2 – I was able to recall specific events or incidents related to identity and belonging.
- Statement 3 – I was able to cite specific quotations related to the theme in my writing.

Findings: Comprehension

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<td>Comprehension</td>
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<td>Very Good</td>
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- Statement 4 – I was able to understand and summarise the storyline of the texts studied.
- Statement 5 – I was able to infer the meaning formed through the figurative language used with regards to the theme of identity and belonging.
- Statement 6 – I was able to discuss and explain the issues of identity and belonging in the text during group discussions and presentations.
Findings: Application

- Statement 7 – I was able to identify with the issues of identity and belonging that some or most of the characters faced.
- Statement 8 – I was able to relate current events to the experiences of the characters in the texts.
- Statement 9 – I was able to use the structure of an expository essay to create my own response to a given prompt.

Findings: Analysis

- Statement 10 – I was able to analyse the elements that impacted and determined the characters’ sense of identity and belonging.
- Statement 11 – I was able to compare and contrast issues of identity and belonging that can be found in different texts.
- Statement 12 – I was able to examine the issues in the unseen texts and relate them to the texts that were studied during the course.
The Effectiveness of Theme Studies in Developing Critical Thinking Skills among MUFY Students

Findings: Synthesis

- Statement 13 – I was able to combine the similarities in the experiences that affected the identity and sense of belonging of the different characters in the variety of texts studied.
- Statement 14 – I was able to construct statements of identity and belonging by establishing relationships between texts.
- Statement 15 – I was able to organise and categorise information from the various texts and support the point of view that is established in the thesis statement.

Findings: Evaluation

- Statement 16 – I was able to justify why certain characters experienced, and did not experience change in their identity and sense of belonging in my writing.
- Statement 17 – I was able to defend my opinions by substantiating with evidence from the texts in group discussions.
The Effectiveness of Theme Studies in Developing Critical Thinking Skills among MUFY Students

**DISCUSSION**

Most students felt that they did develop their critical thinking skills based on Bloom's Taxonomy domains. The areas in which they felt challenged were:

1. Incorporating quotations to support their point of view
2. Inferring figurative language used in the texts
3. Justifying their opinion in writing

**CONCLUSION**

The majority of the students agreed that they did develop their critical thinking skills especially in the first five cognitive levels. In the highest cognitive level, students response showed that they believed their ability to critically analyse the text was stronger in group discussions rather than writing.

**REFERENCES**


USING YOGA TO DEVELOP MINDFULNESS IN MUFY STUDENTS

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Abstract

Yoga often brings to mind the image of someone twisted in the shape of a pretzel. Yoga is usually associated with ‘asana’ (posture) and therefore in many of the fitness centres and gyms where yoga is being taught, emphasis is given to its physical aspect. However, deeper practice of yoga is beyond that. Patanjali’s famous definition of yoga is yoga chitta vritti nirodhah, which means “yoga is the removal of the fluctuations of the mind”. Chitta is mind, vritti is thought impulses and nirodhah is removal. Yoga practices can lead to mindfulness. Mindfulness means living in the moment. When you are mindful, you observe your thoughts and feelings from a distance, without judging them good or bad. Students encounter many issues pertaining to the mind and emotions. This often leads to them making emotional and sometimes adverse decisions in life. Yoga classes are thus being conducted to observe the students behavioural, physical and mind changes. Through this study, I expect the students to have improved focus, reduced stress levels and enhanced decision-making abilities in life by living in the present moment. Practising yoga would help them to be calmer and healthier, not just physically but also mentally.

Keywords: yoga, mindfulness, asana, mind, present moment

INTRODUCTION

Yoga

Yoga is well known to reduce stress and anxiety. This is due to the practice that focuses on concentration and mindfulness which helps to keep the mind calm and centred. According to Patanjali Yoga Sutras Chapter 1, the Samadhi Pada, which is the chapter on concentration, shows there are five states of mind. The five states are Kshipta (disturbed),
Mudha (dull), Vikshipta (distracted), Ekagra (mindfulness) and Nirodhah (mastered). The kshipta mind is disturbed, restless, troubled, and wandering. This is the least desirable of the states of mind. The mudha mind is stupefied, dull, heavy, and forgetful. It is in a lethargic state somewhat like when one is depressed – though it is not intending to mean clinical depression only. The vikshipta mind is distracted, occasionally steady or focused. This mind can concentrate for short periods of time, and is then distracted into some attraction or aversion. Then, the mind is brought back, only to be distracted again. However, the ekagra mind is mindful, focused and concentrated. When the mind has attained the ability to be mindful, the real practice of yoga begins. It means that one can focus on tasks at hand in daily life, practising karma yoga (the yoga of action) by being mindful of the mental process and consciously serving others. The person with a mindful mind just carries on with the matters at hand, undisturbed, unaffected, and uninvolved with other stimuli. It is important to note that this is meant in a positive way, not the negative way of not attending to other people or other internal priorities. The mindful mind is fully present in the moment and able to attend to people, thoughts, and emotions at will. The final state of mind, the nirodhah, is highly mastered, controlled, regulated, and restrained. It is very difficult for one to capture the meaning of the nirodah state of mind by just reading about it. The real understanding of this state of mind comes only through the practice of meditation and pranayama. Basically, the practice of mindfulness is based on the ancient teaching of the patanjali sutras.

Mindfulness

Mindfulness is observing thoughts without criticism and being compassionate to one’s self. Mindfulness brings long term happiness as it focuses less on unhappy thoughts and practises more on living in the present moment. It will positively affect the brain pattern to face daily life challenges without stress and anxiety. It is a simple mental training and it can be achieved with the awareness of breathing which is widely practiced in yoga.

**METHODOLOGY**

This research will be carried out for 15 weeks where the students will be attending yoga classes for an hour per week. The research will use a qualitative method to analyse and data will be derived from tests beforehand to know their level of mindfulness. Students will also be interviewed after the sessions have completed. The questionnaire will be given before and after the yoga sessions. The effectiveness will be analysed upon completion of data gathering.
REFERENCES


THE INFLUENCES OF VISUAL AND AUDIBLE INTERRUPTIONS ON STUDENTS’ PROBLEM-SOLVING PERFORMANCES

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Abstract

The purpose of this paper is to discuss the influences of intermittent visual and audible interruptions on students’ problem-solving performances. Students with accessibility to digital tablets in the classroom have higher potentials to be interrupted from their primary task of learning. It is expected that students can perform more accurately if they are not being distracted to do secondary tasks, audibly interrupted by the tablets’ notification sounds or visually interrupted by the attractive video clips. To study its influences, we assessed the students’ performances under the interruptive and quiet conditions. Our results show that students performed better if they were not being interrupted occasionally. We suggest the implementation of the tablets’ monitoring to reduce the possible interruptions inside the classrooms.

Keywords: interruption, digital tablet, problem solving

INTRODUCTION

As more private colleges in Malaysia are deploying digital tablets in the classrooms, students have one more asset to pay attention to during their lessons other than lecturers and whiteboards (Sunway College Johor Bahru, 2015b; Yusup, 2014). Kahnemn writes in his interference theory that “Interference will arise even when the two activities do not share any mechanism of either perception or response” (Kahnemn, 1973). It is not hard for most of the lecturers to believe that students who use electronic gadgets during lectures will be more easily distracted as compared to those who abstain from using electronic gadgets during classes.
Y. Ellis, B. Daniels and A. Jauregui (2010), have shown that students would have a higher GPA if the students do not multitask. It is interesting to find out how the students’ performances can be affected if they are studying under the conditions that can be regularly interrupted by the buzzing electronic devices. I have conducted two activities to study the differences in students’ problem-solving performances under interruptive and quiet conditions.

**METHODOLOGY**

The subjects of this research were 51 students from A-levels and Monash University Foundation Year programmes from Sunway College Johor Bahru. It was assumed that all of the students possessed the ability to understand and solve the problems that they were assigned to do without external assistance (Sunway College Johor Bahru, 2015a). We used the Computerized Placement Testing questions (ForsythTech Community College) to assess their English and Mathematics skill levels. Each student had 8 minutes of time to complete the assessments per subject.

In the first activity, the students would conduct the assessments under a rather relaxed environment with intermittent interruptions. In their second activity, they would conduct the assessments under a quiet environment without any interruptions. In this study, interruptions were defined as the instructed secondary tasks, intermittent cellphone notification ringtones, videos and audios playing in the classroom. The speeds and accuracies of the students’ performances were recorded for further analysis.

**RESULTS AND DISCUSSION**

For students’ performances in English, the median scores of the interrupted and uninterrupted students are 32% and 36%, respectively. For students’ performances in Mathematics, the median scores of the interrupted and uninterrupted students are 20% and 32%, respectively. For students’ speeds in English and Mathematics, excluding the outliers, all students used 8 minutes to conduct their trials.

It is shown that students could perform better if they would focus on their work under the quiet condition. We suggest that the students should avoid multitasking to reduce their chances of being interrupted. Time management and prioritisation skills are some of the possible solutions to this matter. On the other hand, educators can also implement enforcements such as “Guided Access” to control students’ accessibilities to applications when the students are allowed to use the electronic gadgets during class time.
REFERENCES

ForsythTech Community College. Computerized Placement Testing ACCUPLACER/CPTs.
This article highlights the prevalence of mathematics difficulties among students, their challenges while problem solving, and academic and economic consequences due to insufficient problem-solving skills. Cognitive strategy instruction has attempted to address the needs of students with learning difficulties, with particular attention to students’ ineffective cognitive and metacognitive processes. The main features of two packages of cognitive strategy instruction and the establishment of the link between the strategy instruction and problem-solving performance are highlighted. The implementation of this kind of instruction is in light of the urge to balance between content and strategy instructions in the classroom.

**Keywords:** Mathematics difficulty, pedagogy, cognitive strategy instruction, problem solving

**INTRODUCTION**

Mathematics difficulty is an educational behaviour that prevails among students in various academic settings. In the literature of learning disability, such a behaviour is known as mathematics disability. It is estimated that 5% to 8% of school-age children exhibit some forms of deficit in arithmetical competencies (Geary, 2003). Students with mathematics difficulties progress slower than their average-achieving peers in knowledge acquisition, and they reach a plateau after 7th grade in their mathematics knowledge and only improve by one year in terms of growth in mathematics through grades 7 to 12 (Warner, Alley, Schumaker, Deshler & Clark, 1980).
Additionally, the top ranked challenges faced by students with mathematics difficulties in grades 8 through 12 were: (a) difficulty with word problems, (b) difficulty with multi-step problems, (c) difficulty with the language in mathematics, (d) failing to verify answers and settled for the first answer, (e) unable to perform simple calculations, and (f) taking a long time to complete calculations (Bryant, Bryant, & Hammill, 2000). The insufficient skills in problem solving could put students at risk of failing their college entrance examination (Woodward et al., 2012), and eventually, these students would have less job opportunities and may end up with less-paid jobs (Every Child a Chance Trust, 2009).

Given the academic challenges faced by students with mathematics difficulties in problem solving and the direct impact of weak problem solving skills, classroom instructions directed by the teacher, or collaborated between the teacher and students, should focus on the challenges students encountered while problem solving. Purely focusing on content instructions would not overcome the prevalent challenges associated with problem solving; therefore, teachers need to balance between content and strategy instruction (Swanson, Harris & Graham, 2014). The earlier version of heuristic strategy, which is devoted by Polya (1945), has 4 steps to perform while answering mathematical questions: (a) to understand the problem given, (b) to devise a plan to solve it, (c) to carry out the plan, and (d) to look back to check the answer. As research in education and psychology evolves, self-regulation (a metacognitive function) has been integrated into models of strategy instructions and is a pivotal process in classroom instruction.

**COGNITIVE STRATEGY INSTRUCTION**

According to Krawec and Montague (2012), cognitive strategy instruction is “an explicit instructional approach that teaches students specific and general cognitive strategies to improve learning and performance by facilitating information processing” (p. 1). Instructions to students with mathematics difficulties need to be explicit, given that they are ineffective and inefficient strategic learners (Montague, 2007). The instructional features are normally sequential and structured. Extant knowledge on academic tasks and metacognitive knowledge that students bring to class are important matters to consider while strategising instructions as strategic teachers need to adjust instruction to connect between students’ prior knowledge and the new knowledge to be learned.

In addition, cognitive strategy instruction emphasises students’ need to achieve mastery of a list of learned strategies and involves students to activate and use self-regulation of learning, such as self-monitoring and self-revaluation on initial goals and task outcome, when implementing the learned strategies. This learning process occurs recursively, and at the end, students are expected to implement it flexibly and adaptively. One
Cognitive Strategy Instruction to Promote Problem-Solving Skills among Students with Mathematics Learning Difficulties

popular strategy instruction package is *Solve it!*, which is developed by Montague and her colleague (Montague, 1992; Montague & Bos, 1986). The interventional framework is very structured with three metacognitive activities (i.e. self-instruct, self-question and self-monitor) in the form of SAY, ASK, and CHECK statements that are attached to each of the 7 steps (i.e. read, paraphrase, visualise, hypothesis, estimate, compute, and check) in the cognitive strategy.

Another strategy instruction package (Case, Harris, & Graham, 1992), has been validated in the secondary setting. Demonstration of self-regulation procedures (self-evaluation, self-instruction and self-recording) is embedded in the strategy as an important feature of the intervention package. The intervention phases include activation of prerequisite knowledge; conferencing pertinent to performance level and commitment; discussion of the problem-solving strategy; modelling of the strategy and self-instructions through think aloud; mastery of the strategy; guided practice of the strategy and self-instructions; independent practice/performance; and generalisation and maintenance. The five-step strategy is as follows: (a) read the problem loudly, (b) look for keywords and circle them, (c) use pictures to unlock the problem, (d) write down the mathematics sentence, and (e) write down the answer.

The latter strategy intervention was adapted and implemented on three pre-university students with some form of mathematics difficulties. The tasks were from a study area of a mathematical subject, and the overall outcome of the package was encouraging (Tang, 2015). The following were some of the findings. Students were able to achieve a mastery level on probes and maintain the mastery level two weeks after their last probe, and two students were able to generalise the strategy from word problems pertinent to geometric sequence to complex word problems in financial mathematics.

In summary, the completion of curriculum content in a restricted time period is important but teachers are urged not to forget to foster students with mathematics difficulties, or students at risk in mathematics, to be strategic learners and thinkers. Given the benefits of the strategy instruction, teachers could experiment with the instructions in their own classes. Perhaps teachers may try other strategy instructions that they feel comfortable with.
Cognitive Strategy Instruction to Promote Problem-Solving Skills among Students with Mathematics Learning Difficulties

REFERENCES


INVESTIGATION OF STUDENTS’ UNDERSTANDING OF STATISTICS BEFORE AND AFTER PROJECT-BASED ASSESSMENT

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Abstract

Authentic assessment has become very popular nowadays, that it has been incorporated not only in higher level education but also in lower level education. The aim of this action research is to measure the comprehension of Statistics in students after a project task was given in one of the foundation courses offered at a private institution. The research revealed that the students have better ability in mastering statistical concepts after they had completed an out-of-class project. Students’ involvement directly in collection, analysis, interpretation and graphical presentation of data enhanced their learning outcome. This is apparent in students’ written assessment results before and after completion of the project task. The results were analysed using the quantitative approach. From the analysis, the students had scored better in the written assessment after the project task was given. The outcome of this research will allow us to open our mindset in exposing students to real-life problem analysis before conducting a formal written test, particularly in Statistical topics.

Keywords: project task, mastering statistical concepts
INTRODUCTION

Every subject taught in schools, colleges, universities is assessed formally or informally. Assessment is an ongoing process where it allows the learner to evaluate the understanding of the subject matter. Broud (1998) stressed that if the teachers want to know how students think and absorb the lesson, then assessment is the starting point. Mathematics 2 is one of the subjects offered in Monash University Foundation Year (MUFY). This subject is usually offered to semester 2 students as they are required to take Mathematics 1 in semester 1, although both Mathematics 1 and 2 can be studied concurrently. There are four study areas covered in this subject; Sequences and Series, Basic Probability and Combination, Probability Distributions and Statistics. There are four internal written assessments, one for each study area worth 15%, 25%, 30% and 30% respectively, and one external end-of-semester examination. For many years, the internal assessment was conducted in the form of a topical test, the traditional summative assessment. However, in 2010, the MUFY curriculum and assessment system was reviewed in order to include authentic assessments. According to Wiggins (1990), who is a widely-known advocate of authentic assessment in education, in comparison between traditional assessments and authentic assessments, said “authentic assessments require students to be effective performers with acquired knowledge. Traditional tests tend to reveal only whether the student can recognise, recall or “plug in” what was learned out of context. This may be as problematic as inferring driving or teaching ability from written tests alone.” As a result, the project-based assessment was introduced. Hence, in 2011, the revised curriculum was implemented. As such, students are required to sit for four internal written assessments, one for each study area and an out-of-class project task for Study Area 4, Statistics (Shum, 2010). Having said that, the assessment for Study Area 4 consists of two parts, written and project-based assessment, both carrying a weightage of 15% respectively. The project task allows students to be more aware about the statistical process starting from collection, analysis, interpretation and presentation of real life data. Exposure to real-life modelling application will greatly help students’ understanding in this particular area. The objective of this research is to measure the comprehension of Statistics in students from the January 2016 intake, before and after a project task.

METHODOLOGY

Based on the lesson planned for Mathematics 2 in January 2016, four weeks were allocated for Study Area 4, Statistics, comprising univariate and bivariate data analysis. A written assessment, Test 2, was given to students at the end of the fourth week.
In the second week of the lesson, when the bivariate data was introduced, a group project-based assessment was given to students with guidelines. Students were asked to form a group of three or four, and were given approximately three weeks to complete the project. The title of the project was “Study on the relationship between two variables”. Students were required to choose two quantitative variables that had relation hypothetically. Hence, data were collected either through interviews, survey forms, experiments, etc. By using the bivariate analysis, they concluded the strength and direction of the correlation between the two variables. Usage of Microsoft Word, Excel and Graphics Calculator were emphasised throughout the duration. The deadline of submission was after they sat for Test 2. As soon as the students submitted the project, another written assessment, Post-Test 2 was given, which had the same format and coverage as Test 2. The subject leader of Mathematics 2 was asked to vet both the test questions to ensure that the standard was maintained. In other words, the students sat for the written assessment for Statistics before and after the completion of the statistical project. The results for both the tests were analysed using the Statistical Package for Social Science (SPSS). At the same time, after Post-Test 2, a survey form was given to each student to get their feedback on several matters. The questions in the survey form included the rating of their understanding in Study Area 4, before, during and after the completion of the project task using the Likert Scale. Prior knowledge in Statistics and Mathematics scores in O Levels or SPM were among other information collected in the survey form.

RESULTS AND DISCUSSION

There were 34 students who participated in this research, out of which 44% were males and 56% were females. They were all from various ethnicities and countries such as Malaysia, Singapore, Sri Lanka, Bangladesh, Germany and Maldives. The survey showed that all of them had statistical background in high school.

The following charts reflect the percentage of students rating their understanding of Statistics before, during and after the completion of their project-based assessment. About 53% of the students rated their understanding as ‘Good’ and ‘Very Good’ after the completion of the project. These results showed that more than half of them agreed that project-based assessments helped them to understand the topic better.

High distinction, HD, are scores above 80%, while distinction, D, are scores between 70% and 79%. Credit marks, C, are from 60% to 69% and pass marks, P, are from 50% to 60%. The charts show that the percentage of the HD grade and D grade have increased in the Post-Test. All the students managed to secure at least a C grade in the Post-Test as compared to the results in Pre-Test where 3% of them scored below 60%.
Students Pre-Test and Post-Test scores were compared and summarised in the charts below.

The table above shows that the mean score for Post-Test is higher than the mean score for Pre-Test. Overall, students performed better in the Post-Test as compared to the Pre-Test.
Pearson correlation is used to determine the strength of the correlation between Pre-Test scores and Post-Test scores and also project marks. The results are shown in the table below.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Pearson Correlation Coefficient, $r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project and Pre-Test</td>
<td>0.269</td>
</tr>
<tr>
<td>Pre-Test and Post-Test</td>
<td>0.857</td>
</tr>
<tr>
<td>Post-Test and Project</td>
<td>0.660</td>
</tr>
</tbody>
</table>

Clearly, there is a stronger correlation between project marks and Post-Test marks as compared to the Pre-Test marks. These results tally with the information obtained from the survey form. The project-based assessment allows the students to understand the subject matter better. Hence, students are able to perform better in the Post-Test.

As the performance of the same group of students are measured differently, paired sample t-test with 5% significance levels was used to see if there is an improvement between the Pre-Test and Post-Test marks. The test results show that it is significant ($t_{33} = 4.168$, $p < 0.05$), which concludes that there is an improvement in the mean Post-Test marks as compared to the mean of Pre-Test marks.

**CONCLUSION**

The results of the analysis from this action research clearly show that project-based assessments have helped students to comprehend the concepts in Statistics better.

**REFERENCES**


BLENDING LEARNING: ENGAGING ESL STUDENTS

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Abstract

This conference paper is pedagogically focused and hypothesizes that blended learning can increase engagement levels in digital natives of an ESL background. To reach this conclusion, we focus on the use of an LMS (using Moodle as a case study), social media (using Facebook as a case study) and teacher-created videos. Our findings support academic literature which suggests there are both benefits and hurdles for teachers and students.

Keywords: blended learning, globalisation, MUFY, ESL students, pedagogy

INTRODUCTION

As recipients of a Teaching and Learning Grant at the end of 2015, the MUFY Globalisation team at Monash College, Melbourne, have been working to overhaul the way we deliver content to our students. The impetus for this pedagogical change came from the realization that the course lacked differentiation for learning styles and levels, and, therefore, impacted engagement levels. These endeavours, influenced by literature, have included a redesign of our Moodle page, as well as the creation of videos designed to engage our students and provide them with key content. Coinciding with this is the ongoing MUFY Globalisation Facebook page, all of which allow students to engage with the course content in a blended learning environment. These approaches are underpinned by a desire to cater for the unique needs of students who are coming to MUFY Melbourne, all of whom have English as a Second Language (ESL). As part of an
Action Research Project, the reactions and experiences of students have been charted through the use of surveys. Based on findings so far, we hypothesise that our blended learning approach complements the literature in suggesting that ESL students are indeed benefiting from these pedagogical changes, despite potential hurdles.

Our Definition of Blended Learning

Blended learning is a term with many definitions. However, for the purpose of the MUFY team of teachers and the desire for higher levels of engagement from students, Tang’s (2013) explanation is noteworthy when he refers to “an optimization combination … includ(ing) the positive aspects of face-to-face learning and online learning” (p. 31).

METHODOLOGY

We have adopted a hybrid approach to our study. This includes a literature review focusing on the pedagogical benefits of blended learning for ESL students insofar as their engagement levels are concerned. The findings then formed the basis for our focus on the LMS (Moodle), use of video and social media (Facebook). Alongside the review, qualitative data from student and staff surveys and focus groups has been collected and analysed to form the Action Research component.

RESULTS

Based on the literature and our own data collection, several trends have become apparent relating to both increased engagement levels for students and potential hurdles for staff and students. Key benefits for engagement linked to the videos and LMS relate to the ability for self-directed learning and combating auditory processing hurdles associated with second-language learners. The use of social media and LMS also allow for greater communication and authentic experiences for students. The most notable hurdles, consistent across the platforms, relate to time constraints for staff; and, for students, the potential that they lack adequate cultural and technological literacy to gain maximum benefit from blended learning.

DISCUSSION

As previously indicated, our data so far complements the literature concerning blended learning and ESL student engagement. The importance of access to video/podcasted course content is a key engagement tool for ESL students, particularly in terms of self-directed learning (Pearce & Scutter, 2010, and Karnad, 2013). Learning Management Systems, in this case Moodle, also facilitate the structured engagement of this same cohort and allow for interaction with peers and teachers (Tang, 2013, and Suppasetseeree & Dennis, 2010). Finally, as a platform that students are already familiar with on a social
level, Facebook can become an ally for teachers wishing to engage these students at a higher level (Mahmud & Ching, 2012, and Shih, 2011). However, across all these blended learning initiatives, care needs to be taken to combat issues relating to “cultural literacy” (Arenas, 2012, p. 65). While we have chosen Moodle and Facebook as our case studies, we purport that outcomes would be shared across the various LMS and Social Media platforms and can therefore be adapted to suit the needs of various institutions.

CONCLUSION

While there are hurdles to be overcome, it is clear that blended learning has a lot of potential to support ESL students and encourage engagement. This is an area that will be of ongoing interest to teachers and administrators within our sector and, as our research continues to evolve, we hope to provide clearer insights into how blended learning can assist our students’ engagement levels.

REFERENCES


LPI CAREER TEST (LPICT): CONSTRUCT VALIDITY AND CORRELATION WITH ACADEMIC PERFORMANCE

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Abstract

This study reports the construct validity of the Leonard Personality Inventory Career Test (LPICT) and its correlation with academic performance. (1) A 51-item preliminary version of the LPICT was administered to pre-university students (n = 379) and subjected to construct validation and reliability analyses. Exploratory factor analysis (EFA) revealed 10 discernible factors. Reliability analysis indicated acceptable reliability. (2) A 55-item version was piloted among A-level students (n = 42–68). Correlational analyses showed three LPICT scale scores which correlated significantly with academic performance. Further applications of the LPICT in academic and course-advisory settings are discussed. Free online access to the LPICT may be requested from the first author for the purpose of counselling and research.

Keywords: career guidance, academic achievement, counselling

INTRODUCTION

Anecdotal evidence suggests that a good proportion of students entering pre-university education are undecided on the course of study to pursue at tertiary level. An informed decision requires an awareness of one’s academic aptitude and professional guidance. Inventories offering career guidance are available, such as Holland’s Six Personality Types (n.d.), Holland’s Self-Directed Search (SDS; Holland, 1994) and Meyers-Briggs Type Indicator (MBTI; Myers et al., 1998). However, for statistical and practical reasons,
these tools were limited in a Malaysian context. From conversations with counsellors in two Malaysian education institutions, such tools in use were relatively expensive, the language was deemed somewhat challenging for the average Malaysian secondary school/pre-university student, had a cultural bias, and outdated in terms of the items used. Previous research also indicated that personality and career choice were distinct constructs (Zhang, 2008). In view of these, the LPICT was developed.

The LPICT consists of variables derived from educational and personality psychology theories, namely, Multiple Intelligence (MI) theory (Gardner, 1999) and the Five-Factor Model of Personality (Yong, 2007). The existing version of the online LPICT was based on a number of years of research on the career orientations of Malaysian students and was conducted with the assistance of a number of psychology lecturers in Malaysian universities. The online LPICT gives respondents instant feedback on their top three Career Factors followed by recommended careers and courses. This paper reports two separate studies, namely, the construct validation of the LPICT and its correlation with academic performance.

**METHODOLOGY**

**Study 1**

Two prototype versions of the LPICT were administered to pre-university students (average age: 17-18 years). A 58- and 64-item LPICT were administered to two separate samples ($n = 115 & 264$). In order to determine reliability and construct validity, data were analysed using reliability and exploratory factor analyses (EFA) for each sample and in combination (total $n = 379$).

**Study 2**

Based on statistical analyses in study 1, only 51 items of all items tested were retained for the third LPICT version (online). Items were either removed or added in order to make up 5 items per factor (scale). The current online version of the LPICT has 55 items undergoing testing. The 55-item online LPICT was administered to A-level students ($n = 42 – 68$). In order to test for convergent evidence of validity, correlational analyses was carried out to test the relationship among LPICT scale scores and academic performance (AS-level exam scores on four Science courses, namely, Biology, Chemistry, Physics and Mathematics).
RESULTS AND DISCUSSION

Study 1: Construct Validity

Construct validity was established via EFA which revealed at least 10 discernible factors (scales) accounting for most variance (58 %), with acceptable factor loadings and reliability Cronbach alphas (Pallant, 2011; Table 1). This level of variance is acceptable for factor analysis in social science studies (Hair et al., 2010). Although only the factor structure of the construct of ‘Standards/Legal/Authority’ was not clearly defined, there was good internal consistency as shown by reliability analyses.

<table>
<thead>
<tr>
<th>No.</th>
<th>Career Scales</th>
<th>Sample Career</th>
<th>Number of Items</th>
<th>Reliability (a)(^{a})</th>
<th>Factor Loadings(^{b})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commerce</td>
<td>Businessman</td>
<td>5</td>
<td>0.80</td>
<td>0.58–0.81</td>
</tr>
<tr>
<td>2</td>
<td>Communication/Relational</td>
<td>Public relations</td>
<td>4</td>
<td>0.71</td>
<td>0.67–0.73</td>
</tr>
<tr>
<td>3</td>
<td>Creative/Artistic/Musical</td>
<td>Architect</td>
<td>3</td>
<td>0.67</td>
<td>0.56–0.84</td>
</tr>
<tr>
<td>4</td>
<td>Eco-Philosopher</td>
<td>Environmentalist</td>
<td>4</td>
<td>0.64</td>
<td>0.50–0.72</td>
</tr>
<tr>
<td>5</td>
<td>Editorial</td>
<td>Journalist</td>
<td>5</td>
<td>0.68</td>
<td>0.41–0.75</td>
</tr>
<tr>
<td>6</td>
<td>Kinaesthetic</td>
<td>Sports coach</td>
<td>5</td>
<td>0.84</td>
<td>0.69–0.81</td>
</tr>
<tr>
<td>7</td>
<td>Mathematical</td>
<td>Mathematician</td>
<td>3</td>
<td>0.87</td>
<td>0.84–0.86</td>
</tr>
<tr>
<td>8</td>
<td>Science (natural and social)</td>
<td>Biochemist</td>
<td>5</td>
<td>0.74</td>
<td>0.43–0.86</td>
</tr>
<tr>
<td>9</td>
<td>Service/People</td>
<td>Hospitality service executive</td>
<td>6</td>
<td>0.72</td>
<td>0.50–0.68</td>
</tr>
<tr>
<td>10</td>
<td>Standards/Legal/Authority</td>
<td>Lawyer</td>
<td>6</td>
<td>0.70</td>
<td>Uncl.</td>
</tr>
<tr>
<td>11</td>
<td>Tools &amp; Information</td>
<td>Engineer</td>
<td>5</td>
<td>0.85</td>
<td>0.70–0.86</td>
</tr>
</tbody>
</table>

\(^{a}\): Cronbach alpha; Uncl.: unclear;

Table 1 Factor Loadings and Reliability Cronbach Alphas of the LPICT Career Scales
Study 2

Convergent (concurrent) evidence of validity for the LPICT was observed for certain LPICT scales when tested for relationships with academic scores. Three LPICT scale scores correlated significantly with academic performance (Table 2). Correlation analyses revealed statistically significant and moderate to strong relationships among the LPICT’s scales, “Mathematical”, “Science (natural and social)”, and “Tools & information” with AS-level exam scores on four courses (Biology, Chemistry, Physics and Mathematics).

<table>
<thead>
<tr>
<th>Career Scales</th>
<th>α</th>
<th>Biology&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Chemistry&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Physics&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Mathematics&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematical</td>
<td>0.90</td>
<td>0.29*</td>
<td>0.30*</td>
<td>0.33*</td>
<td>0.48**</td>
</tr>
<tr>
<td>Science (natural)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.73</td>
<td>0.24*</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Tools &amp; Information</td>
<td>0.83</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.28*</td>
</tr>
</tbody>
</table>

<sup>a</sup>: Spearman’s rank correlation coefficient, (n = 68); <sup>b</sup>: Pearson’s correlation coefficient (n = 42); <sup>c</sup>: redefined 4-item scale after deletion for better construct validity and reliability.

Table 2  Scale Reliability and Correlation Coefficients of Significant Associations between Selected LPICT Scale Scores with Academic Performance

All three LPICT scales which significantly correlated with academic performance were Science-oriented. These results confirmed expectations that the academic scores of the sample, which comprised Science students, would correlate more with science-oriented LPICT scales. The presence of significant relationships between LPICT scales and academic performance potentially implies the predictive validity of these LPICT scales for science-related courses in future work.

CONCLUSION

The results of this study indicate that the LPICT demonstrated overall sufficient construct validity and reliability for its scales. Therefore, academic advisors such as teachers or counsellors may administer the LPICT to guide students on the choice of course and career. Convergent (concurrent) evidence of validity was also demonstrated for certain scales with a Science orientation.
Further work is suggested for the administration of the LPICT among non-Science students to look for significant relationships between other LPICT scales and academic performance. Future testing of the predictive validity of the LPICT with regards to academic performance would be most valuable as a counselling tool to guide students on matters of course and career choice.

The instant feedback given by the easily-accessible online LPICT helps conserve precious time of both educator/counsellor and student. Free online access to the LPICT (http://www.leonard.com.my/career/) may be granted to educators/counsellors upon request from the corresponding author for the purpose of counselling youth in the choice of study.

REFERENCES


Critical, multilingual, and anti-racist pedagogies are integral parts of the international educators’ toolkit; their ability to ensure that the learning environment is student centred mitigates the potentially ‘othering’ nature inherent to international teaching. Critical pedagogy, for the purposes of this study, is a praxis-oriented methodology that seeks to disrupt traditional notions of knowing and, in turn, motivate social transformation through education. International education has traditionally been teacher-centric, English-oriented, and Western prescribed, rather than student directed, linguistically inclusive, and democratic. Multilingual, anti-racist and other postmodern pedagogies work to challenge previously held beliefs about “true” knowledge and the directionality of learning.

By knowing students’ cultural, linguistic and historical backgrounds, educators can better work within the space between learned knowledge and lived experience. This in turn will help them to challenge the societal norms and barriers that impact their lives. Recognising that teachers come into the classroom as whole human beings, often being directly impacted by the intersection of their culture, choices, gender, and many other factors – and that students do too – is an excellent step towards anti-racist education practice. In the international schooling context, which is inherently colonial and ‘othering’ in itself, it is especially important for teachers to both unpack their own biases and intersectionality while keeping in mind that the circumstances that surround students’ lives may be complex and unfamiliar to them.

The author of this case analysed the historical, colonial, and cultural context of international education and anti-racist pedagogy in Malaysia and used the results to inform actual teaching practice. This case study is a summary of the implementation of those ideas, centred around the use of technology as a pedagogical tool. The evidence...
in this study suggests that technology and multilingual, critical pedagogy provide Malaysian international students with opportunities for deep mastery and understanding of both course content and their own societal perspectives.

**Keywords:** technology, critical, pedagogy, multilingual, community, Malaysia

**INTRODUCTION**

**Background and Rationale**

The initial premise behind the author’s exploration of Malaysian international education was to determine the applicability of critical, democratic teaching methods to this context, prior to entering a Malaysian classroom. “[The report] aggregates the available English-language sources on Malaysian politics, demographics, Islamic society, and social movements and provides concrete recommendations in reference to foreign-taught international schooling” (Molnar, 2015). The author explored the colonial legacy of racism, examined the political changes of the past fifty years, reviewed the current political climate through the lens of education, and analysed the implications of popular culture, social movements, and gender roles on informed learning. Through these investigations, a number of trends emerged, centring around the divisive nature of language, race, and social action in Malaysia.

**Preliminary Expectations**

Analysis revealed three integral critical classroom tools that would provide culturally appropriate support to learning in this context. First, fostering a community through respect and teambuilding would help to combat racial and religious tensions on both micro (classroom) and macro (societal) levels. Second, using technology to promote community and increase curriculum mastery would allow students to express themselves more freely and explore the content from both their own perspective and the perspectives of others in the class. Finally, equity and social justice issues need to be approached in an implicit way with students leading the discussion.

**Post-Implementation Reflection**

Implementing the pedagogical tools in actual teaching practice proved to be more effective than originally anticipated. Students took to deconstructing and challenging societal ideals, supporting each other through community, and working towards content mastery with surprising enthusiasm. The author of this case found that students
could be challenged more, and, in turn, were more challenging of previously held ideas. This allowed for more ambitious lesson planning and assessment. Using technology as a driving force for democratic education allowed the students in this case to increase their engagement with and, ultimately, find purpose in their learning.

TECHNOLOGICAL TOOLS AND RESULTS

Although this section is non-exhaustive, the three main tools that highlight the benefits of placing technology at the core of a critical, multilingual pedagogy are collaborative class-wide documents, the Google Apps for Education suite, and Coggle, an online brainstorming (mind-mapping) site. This case study will highlight the applicability of these technologies to student mastery and engagement. However, it should be noted that these are merely convenient tools – their full potential cannot be realised without the support of a well-rounded and critically directed pedagogy.

Collaborative Documents – Multilingual Dictionary

We teach our students, using academic English, ancient textbooks, and explicit writing prompts, that class systems and social hierarchies do not exist anymore and that they can achieve anything. However, these ideas that we are trying to teach conflict directly with the way that we teach them. When students’ home cultures, languages, social activities and even mannerisms come into conflict with the structure of their education, this struggle rarely ends with the student triumphing and schooling bending to their will.

Applying the concept of acknowledging students’ cultural and linguistic backgrounds has been a process of ongoing praxis in the author’s classroom. Initially, this was implemented through differentiation and verbal (discussion-oriented) affirmation, but this was not universally effective. After reflection and re-evaluation, the author has moved towards a more concrete method of intersectional validation: collaborative multilingual dictionaries.

These dictionaries are maintained through the use of Google Apps for Education and collaborative Google Docs, but could be created using any one of many educational technologies. It is important to note that the effectiveness of these dictionaries hinges on the enthusiasm and acceptance of the teacher. It is integral that instructors are able to recognise their own biases towards ways of knowing, and that they stand aside for students to bring their own perspectives to the class. By recognising the individual culture of students and validating their personal humanity, we can encourage a space where students can deconstruct, critique and offer solutions to current social inequalities.
Example 1 A Multilingual Definition for the Word “Audit”

<table>
<thead>
<tr>
<th>Audit</th>
<th>1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A person who &quot;marks&quot; (checks for correctness) the financial statements of a business. Either for the government, the bank, or for another purpose.</td>
<td></td>
</tr>
<tr>
<td>• 审计师是专门从事检查并进一步证明公司会计账目的正确性，合理性和可接受性的专业人员。审计师是公司的高级职员。</td>
<td></td>
</tr>
<tr>
<td>• Orang yang tugasnya ngecekin financial statement mereka perusahaan atau bisnis biar gitu basanya salah sekali. Mereka ngecekin benar atau engang ngaca biar itu bikin financial repotnya.</td>
<td></td>
</tr>
<tr>
<td>• 会計検査（院）、国のすべての会計のほか国が出している政府関係機関、独立行政法人や国が補助金、そのほかの財政援助を与えている都道府県、各種団体など、検査には主に内容検査と実施検査がある。内容検査は所有者で、実施検査は会計内で、実施対象から提出された計算書類が検査するもので、実施検査は、検査対象機関の事業所や事業が実際に行われている場合に出張して行う検査。</td>
<td></td>
</tr>
<tr>
<td>• کسی که «بلندی» (پیکت، پریکت، پریکت، پریکت کسی)</td>
<td></td>
</tr>
<tr>
<td>• و که می‌باید بنده، مگه، و یا برای فکر کرده.</td>
<td></td>
</tr>
<tr>
<td>• يک مه‌مار نیست که به‌طور مداوم تنهایی یا غیره در مسیت‌ها و مراکز‌های بهداشتی و بهداشتی‌های مختلف، چه در滔نا و چه در نیروی سازمان‌های مختلف، به‌طور پیمان‌داری و حساب‌رسانی، به‌طور دقیق و درست تحقیقات و استحکامات، حاصل‌گرایی سازمان‌های مختلف، و تحقیقات علمی‌های مختلف را رعایت کند.</td>
<td></td>
</tr>
</tbody>
</table>

Google Apps for Education – Power Hour

Through problem-posing education and constant praxis, we can give students the agency they need to not only be engaged in their learning, but also to gain the tools that they need within their own social constructions to both succeed in the current system and fight for it to change.

Malaysian students often struggle with challenging the idea of teacher as leader, rather than student as self-determined. In order to encourage independent learning, and provide students with a space to explore their own personal passions, this author took the concepts of autonomy, mastery, and purpose outlined in the TedTalk “The Puzzle of Motivation” (originally geared towards businesses) (Pink, 2009) and applied them to classroom learning.

Students were given two eighty-minute periods over the course of a semester to work on anything they chose. The only rules were that it could not be school work, it had to involve purpose and mastery, and that it had to make the world a better place. Students were asked to submit what they worked on during the period, and reflect on the experience. Some examples of students’ work included formalising future goals, paintings, poetry, research, music and a variety of pieces of writing (both fiction and non-fiction).
Power Hour was facilitated through the Google Apps for Education Suite, including Google Docs (comments, suggestive edits, and collaborative documents), DocAppender, Doctopus, and a number of other tools.

This activity gives students the space to explore and expand their passions and the process of reviewing their work with constructive and supportive comments validates students’ identities and helps to ensure they feel supported and recognised in the classroom. This recognition fosters community and supports risk taking in learning.

Students’ feedback:

“I like the idea of a power hour. I’m passionate about grades just being a number and not defining a person. Just because someone gets a bad grade doesn’t mean they’re dumb, it just means that their intelligence is stronger in another subject or their talents are not one of the subjects taken. This relates to the power hour because for once, students shouldn’t think about and stress over homework but how the world is hurting and it needs help. So this was a good way for people to actually think about what they could do with their talents to make the world a better place.”

Student, Age 17

“In my opinion, I found it difficult to do what I like to do in class, especially when the environment suggests a different task such as working on school work. It was difficult to use school time on personal hobbies because it just didn’t feel right. After I got over the fact that my school work was to do my personal work, I found it easy to stay on task, meaning it was easy for me to generate ideas and explore more about my hobby (poetry). I liked that there was finally a class that would allow me to do my own personal work that was completely unrelated to school and I also liked that in Miss M’s class, individualism and autonomy are supported.”

Student, Age 16
Student-Led Inquiry Lessons – Coggle

Facilitation and discretion are guiding principles to social justice discussions and teaching in Malaysia. Laying the groundwork for a community of supportive students through activities, technology and teamwork, and introduce topics through discussion that centres on the students’ opinions, locations, and cultures is extremely important. In this way, not only are we working to foster community across racial and religious groups, but also students are able to dictate the content, rather than having a foreign teacher dictate the topics, direction, and tone. By providing safe spaces for discussions and tools to challenge, change, and disrupt without ruffling feathers, we can practise student-centred, anti-racist, equity-based education.

In order to illustrate the Stanford University-developed Design Thinking Process, students in a Marketing class worked in collaborative teams to create thematic mind-maps of the problems they were facing in their school and community. As a result of the low-risk verbal nature of the activity (students could discuss in groups, or could type responses into the map), individual ideas and constructive debate flourished.

By allowing students to lead the learning of such an advanced topic through their own vested interests, their engagement level increased and their learning became purposeful. Their Design Thinking then produced a report of actionable items that were sent to the Vice Principal of the school. This validation of their lived experience through learning gave students the opportunity to take action and see real results.

Student’s feedback:

“Collaboration is one of the main things that make Google Classroom and Google tools so much like a real classroom. We can work together in that space, even when we’re not at school.”

Student, Age 16

Other Educational Technology Tools

The following is a non-exhaustive list of tools that this author has used to effectively foster a multilingual, critical pedagogy in teaching practice:

- YouTube content creation
- Screencastify
- Google Slides, Forms, Docs & Sheets
- Autocrat
CONCLUSION

The core of effective critical, multilingual pedagogy is constant praxis, meaning that reflection, analysis, and changed action are required as part of any conclusion. The author of this case has found, through action and implementation of researched ideas, that the theoretical concepts of critical pedagogy are extremely effective in practice. However, that conclusion must not be the end of the line. Further reflection on current pedagogy and use of educational tools is integral to increasing student engagement, validation, and intersectional recognition.

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Blended learning can be described as the use of online learning to complement face-to-face learning. This paper is focused on the implementation of a blended learning approach in Accounting and Finance, whereby various positive implications and benefits have been identified and discussed. Hence, these findings reemphasise blended learning as a dynamic and multi-faceted approach, incorporating the advantages of both traditional and online learning in a content delivery setting.

**Keywords:** blended learning, Accounting and Finance, educational technology

**INTRODUCTION**

There is no single universally agreed definition of blended learning, but many scholars and practitioners in education have been interpreting this term according to their respective contextualised environment in practice (Heinze, 2008). The concept of blended learning is derived from the words “blend”, which means combining, and “learning”, which signifies an assimilation of new knowledge (Olivier, 2011). According to Horn & Staker (2012), blended learning can be described as an educational structure, in which lessons at a physical “brick and mortar” classroom under a supervisor or a teacher are combined with an element of technological usage i.e. online platforms as a medium of instruction and curriculum content delivery, whereby learners have control to a certain extent with regards to time, venue, mode and speed. In other words, blended learning can be described as the use of online learning to complement face-to-face learning (Gecer & Dag, 2012).
Blended learning has also been interpreted as “a practical framework that encapsulates a range of effective approaches to teaching and learning”, whereby two or more instructional modalities are used in integrating multiple content delivery styles via a combination of instructional technology with face-to-face instructor-led lessons (Queensland University of Technology, 2011). This form of learning environment combines the best of both worlds, namely online learning and face-to-face learning, whereby the benefits and experiences of both learning methodologies are amalgamated (Osguthorpe & Graham, 2003) to help students learn in a more meaningful manner (Gecer & Dag, 2012). Mayadas & Picciano (2007) highlight that blended learning blends a variety of independent didactic formats, leading to the construction of a mixed or hybrid methodology of knowledge transmission (Heinze & Procter, 2004), in which an effective combination of different content delivery channels, teaching models and learning styles occurs (Obiedat et. al, 2014).

**EFFECTIVENESS OF BLENDED LEARNING**

Blended learning results in the best of both worlds, where face-to-face learning provides more opportunities for social interactions among students, which will motivate less independent students (Obiedat et. al, 2014), as well as between students and lecturers, while web-based learning gives students flexibility in terms of time and place (Dabbagh & Ritland-Banan, 2005). This will greatly assist students in managing their time (Obiedat et. al, 2014), as they gain control over their own learning and arrangement skills. Moreover, students under the blended learning process tend to be more motivated in undertaking a greater responsibility in their learning, such as choosing reading materials and meeting online submission deadlines (Gecer & Dag, 2012).

Studies have shown that students under a blended learning environment achieved a higher level of academic excellence, which translates to better grades in examinations, compared to students under the face-to-face or distance learning environments (Buck, 2008; El-Deghaidy & Nouby, 2008). This may be due to effective usage of resources, ease of access to learning materials and instructional processes, as well as optimisation of learning outcomes’ accomplishments by ensuring all aspects of learning are at their proper places (Abdel Megeid, 2014). To elaborate, studies have revealed that blended learning boosts the advancement of higher order thinking capabilities and lifelong learning skills (Vitošević, et. al, 2014). As Masie (2002) succinctly points out, “blended learning provides significantly greater opportunity for the learner to master the material and move towards transfer and performance”.

In a forum environment, students are able to voice out their ideas expressively, and this leads to positive communication between the students and their lecturer. Thus, lecturer-student and student-student interactions are enhanced, resulting in the improvement
of student-oriented education (Gecer, 2013). It also hones students’ ability to express themselves in a more systematic and professional manner (Gecer & Dag, 2012), which enhances self-esteem and leadership capabilities (Abdel Megeid, 2014). A research study revealed that teachers found the blended learning process enjoyable as they engaged and interacted with students using this method. Plus, this learning process provides two different options for teachers to choose from, instead of being solely reliant on a single approach (Obiedat et. al, 2014). There has been research conducted which suggests that the increase in human interaction due to blended learning may be associated with a greater level of satisfaction in teaching and learning, based on students’ feedback (Chan & Jia, 2014). To quote Vitošević, et. al. (2014), blended learning undoubtedly “offers possibilities to create transformative environments that can effectively facilitate critical, creative and complex thinking skills”.

DESCRIPTION OF CLASS ACTIVITY USING BLENDED LEARNING

To begin with, the course conducted is Accounting and Finance, specifically on the topics of Corporate Social Responsibility and Ethics in Accounting, with a class size of approximately 30 students. The lesson objective was to explain the concepts of ethics and its role in corporate social responsibility in making business decisions, and the classroom lesson consisted of a pre-lesson online learning, an interactive lesson which was done physically using technology, as well as a post-lesson assessment and online discussion.

Prior to a “brick-and-mortar” classroom lesson, students were required to watch two introductory videos on corporate social responsibility and ethics in accounting, covering basic knowledge like definitions and main aspects of the topics. This was monitored by the teacher via the “user view” feature on the online portal, and students needed to answer an online quiz consisting of several multiple choice questions about the videos’ content to ensure that they acquired the basic understanding on the concepts. Answers to the online quiz were displayed for students’ reference upon their completion.

During the actual classroom lesson, the teacher reviewed certain terms on corporate social responsibility and ethics with the class by using www.pollev.com, an online live polling platform where students used their mobile phones to give their input on the meaning of several terms, which was shown on the projector screen anonymously. The teacher then divided students randomly into six groups of five, and reviewed fundamental theories on the topics which have been covered in the online videos. Then, the teacher introduced a research project to be conducted in class, whereby students were required to research on real-life examples of corporate social responsibility practices done by listed companies, as well as ethical issues which face the current local
accounting environment. As this lesson was conducted in a computer lab, students were given the opportunity to conduct online research on a company of their choice, in order to prepare for a short presentation on their findings towards the end of class. During this period, the teacher assumed the role of a facilitator and guided each group, giving prompt feedback to any queries or challenges posed by the groups in their research. Once the time allotted for research was over, each group was asked to present their discovery to the rest of the class, with the help of a visual aid i.e. PowerPoint slides, and time was given for question and answer sessions. This presentation formed a part of their assessable instrument, whereby the teacher assessed each group's presentation according to set rubrics. At the end of the lesson, the teacher summarised the findings of each group.

After the lesson, each group was required to upload their PowerPoint slides on the online portal, in the "Learning Materials by Students" section for the benefit of other groups. An online discussion board was also created, where students were able to ask questions related to these topics, and other students were given the chance to respond to their peers. Bonus marks were awarded to active online participants, and this contributed to their final presentation assessment scores. The groups were also given a two-week deadline to submit their research in a written report format, and details of the assignment were provided clearly on the online portal right after the lesson, including the rubrics used to assess their reports. This gave them time to conduct additional research and fine tune the coherence of their presentation in the form of a report. This assignment was to be submitted via Turnitin, an Internet-based plagiarism-prevention service tool, and the reports were examined by the teacher as a separate assessable item from the groups' presentations. Although students enjoyed this learning process more than the traditional “chalk and talk” method based on their verbal feedback, no other measurement was done to assess the outcomes of this blended learning methodology.

CONCLUSION
To summarise, blended learning is a dynamic and multi-faceted approach, incorporating the advantages of both traditional and online learning in a content delivery setting. This learning approach is deemed as a promising alternative to existing teaching and learning techniques, and with the right amount of tweaking in measuring its outcomes, blended learning will be the next best practice in education.
REFERENCES


CASE STUDY: THE EFFECTS ON LEARNING ACCEPTANCE AND SATISFACTION IN UTILISING LMS VIA MOBILE TECHNOLOGY AMONG LEARNERS OF SUNWAY COLLEGE JOHOR BAHRU

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Abstract

LMS is widely used in education institutions as a tool to assist in student learning. The study is based on the acceptance and satisfaction in utilising LMS via mobile technology. The case study was carried out with the learners of three programmes of Sunway College Johor Bahru. The study employed a quantitative method to analyse the research. The TAM theory was utilised to determine the degree of acceptance and satisfaction. It is discovered that perceived ease of use and perceived usefulness correlate positively with user satisfaction with $r$ values of 0.716 and 0.58 respectively. Also, user satisfaction correlates positively ($r = 0.694$) with the usability of the LMS. The study recommends future research on the learning achievement and satisfaction on problem-solving skills to be implemented among the learners.

Keywords: acceptance, satisfaction, mobile technology, Learning Management System, Technology Acceptance Model
INTRODUCTION

Learning Management System (LMS) has been widely used to support and assist the learners in educational institutions (Park et al., 2012). The system can be accessed through personal computers or mobiles. Mobile devices are widely used due to its availability and affordability (Newhouse et al., 2006). Mobile learning emphasises the convenience (Kynaslahti, 2003), mobility (Sharples et al., 2009), access (Parsons & Ryu, 2006) and immediacy (Kynaslahti, 2003). The embedded camera, web searching and social networks encourages learning and engagement both in classroom and out of the classroom (Newhouse et al., 2006). Mobile learning is an added value to the learners as the learning extends from the classroom (Kynaslahti, 2003).

There are many theories to understand the degree of satisfaction and achievement in utilising mobile technology for learning. This study will utilise the Technology Acceptance Model (TAM) to determine the users’ satisfaction and achievement in utilising mobile technology for learning. TAM suggests that attitude; perceived ease of use and perceived usefulness is directly linked to the intention to accept the technology (Davies et al., 2004). TAM is adopted from the theory of planned behaviour by Fishbein and Ajzen (1975) and based on the theory of reasoned action (Ajzen and Fishbein, 1980).

Researchers have used TAM to investigate the technological learning process and identifying the students approach in adopting learning via mobile technology (Park et al., 2012). TAM determines the perceive ease of use (PEOU) and perceived usefulness (PU) factors. PEOU is defined as the degree of freeness from mental and physical effort that an individual needs in using the system (Davis, 1989). PU is defined as the degree the system will enhance the performance for the individual (Davis et al., 1989).

In this study, the TAM theory will be utilised to understand the satisfaction and achievement in utilising LMS via mobile technology among the learners of Sunway College Johor Bahru.

RESEARCH OBJECTIVE

The study focused on the following areas:

- analysis of the perceived usefulness (PU) of utilising LMS via mobile technology among learners in Sunway College JB
- analysis of the perceived ease of use (PEOU) of utilising LMS via mobile technology among learners in Sunway College JB
- analysis of the user satisfaction (US) of utilising LMS via mobile technology among learners in Sunway College JB
- analysis of the attribute of usability (AU) of utilising LMS via mobile technology among learners in Sunway College JB
PU is defined as the degree to which the learners believe that utilising LMS via mobile technology is useful to them. PEOU is defined as the degree of ease in utilising LMS via mobile technology. US is defined as the degree of satisfaction the learners have when utilising LMS via mobile technology. AU is defined as the degree of continuance and potential usage in the future of LMS via mobile technology.

**METHOD**

A quantitative approach with the use of a closed-ended questionnaire was applied in this research. Stratified sampling was used on a total of 190 Certified Accounting Technician (CAT), Diploma and Pre-University learners from Sunway College Johor Bahru who completed the questionnaire. The respondents were those who possessed a smartphone and utilised LMS (such as iLearn) via their device. The questionnaire was developed in accordance to the procedure prescribed by Azjen (2006) and literature involving TAM.

The aim of this questionnaire was to investigate the effects on students’ learning acceptance and satisfaction in utilising the Learning Management System (LMS) via mobile technology. The questionnaire measured four key areas, which were (1) perceived usefulness, (2) perceived ease of use, (3) user satisfaction and, (4) attribute of usability. Based on the 5-point Likert Scale, the respondents were required to indicate their level of agreement with the statements provided with regard to the usage of mobile devices.

SPSS, statistic software was used to analyse the data. One-way ANOVA was used to determine if there were any significant differences between the three programmes in terms of perceived usefulness, perceived ease of use, usability of the LMS and user satisfaction. Tests were conducted based on these four key areas. Tests were also conducted to determine the correlation between perceived ease of use and perceived usefulness with usability.

**RESULTS**

There were significant differences between the programmes in terms of perceived usefulness and perceived ease of use, with diploma programmes being significantly different from Certified Accounting Technician (CAT). The respondents from diploma programmes had a more positive opinion on both the perceived usefulness and perceived ease of use of the LMS. Interestingly, there were no significant differences in users’ satisfaction of the LMS among the three programmes. As for usability of the LMS, there seemed to be a significant difference between the three programmes, with Certified Accounting Technician (CAT) being statistically different from the other two programmes.
Overall, there was a statistically significant, moderate positive correlation \((r = 0.58)\) between perceived usefulness and user satisfaction. Also, there was a moderately strong positive correlation \((r = 0.716)\) between perceived ease of use and user satisfaction. There was also a moderately strong positive correlation \((r = 0.7)\) for perceived ease of use with usability and a moderate positive correlation \((r = 0.572)\) between perceived usefulness and usability. A significant, moderate positive correlation \((r = 0.694)\) was presented between user satisfaction and usability.

**DISCUSSION**

As observed from the results, diploma students seem to have a different opinion in terms of perceived usefulness and perceived ease of use compared to the others. However, this does not imply that diploma students are more satisfied with the LMS. The questionnaire does not explore the reasons for this. As expected, perceived usefulness and perceived ease of use do correlate with user satisfaction which in turn correlates with usability.

More than 50% of the respondents agree that using LMS on their mobile device enables the user to get information quickly, 55.2% of the respondents find it easy to use LMS on their mobile device and 61.5% of the respondents do not find it difficult to use LMS on their mobile device. However, only 32.1% of the respondents agree that using LMS on their mobile device helps in time management and only 33.7% agree to always using LMS on their mobile device.

**CONCLUSION**

The study was limited to the degree of acceptance and satisfaction in utilising LMS via mobile technology. In addition, the survey of the study was applied only to 190 learners of Sunway College Johor Bahru in the Certified Accounting Technician (CAT), Diploma and Pre-University programmes. It was administered with a limited time frame. The sample size was not huge enough and limited to only first- and second-year learners. Therefore, testing the model with bigger sample sizes and a wider range of learners is suggested. The study implemented was based on the quantitative research method. Utilising a combination of quantitative and qualitative methods, we could have a better understanding of the degree of acceptance and satisfaction. Acceptance and satisfaction is very subjective to individuals and may not be quantified.

A future research on the degree of learning achievement and satisfaction on problem-solving skills utilising LMS could be explored. The theory of planned behaviour (Ajzen, 2006) could be utilised to determine the results.
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Teaching pedagogies have evolved from one-way traditional teaching to web learning and now, a ‘hybrid’ phase. Hybrid teaching blends online learning activities with face-to-face classroom activities (including both traditional and virtual classrooms). The two are complementary of one another, promoting a better learning and quality two-way interaction between an educator and learners and opens up to a variety of learning methods, stimulating students’ creativity and critical thinking skills. Twigg (2003), identified five distinct course redesign models: supplemental, replacement, emporium, fully online and buffet. This paper discusses the Supplemental Model that retains the number of teaching hours with an addition of technology or non-technology-based out-of-class activities and changes what goes on in class meetings. This study looks at three different combinations of hybrid teaching, implemented among pre-university students at Sunway College Johor Bahru. A review was then carried out to assess students’ acceptance and effectiveness towards hybrid teaching. The outcome varied depending on students’ own learning preferences and personal capabilities at adapting to a new learning environment. Out of the three combinations implemented, there was no one specific preferred method. However, it improved students overall scores which were obtained through assessments.

Keywords: hybrid teaching, blended learning, face-to-face, online learning
INTRODUCTION

Tech-savvy ‘Millennials’ have lots of gadgets, like to multitask, and expect to control what, when, and how they learn (Carlson, 2005). Richard T. Sweeney, university librarian at the New Jersey Institute of Technology, was quoted saying ‘The “Net Generation” or “the Millennials,” will soon alter the way professors teach, the way classrooms are constructed, and the way colleges deliver degrees. Change your teaching style. Make blogs, iPods, and video games part of your pedagogy’. We are in the era where students are very technology-aware. Millennial Generation see technology as a necessity in most aspects of their life including learning (Corriveau, 2010). The use of classroom technology to assist with teaching has evolved over the past 40 years (Baker & Leiter, 2011). The rapid growth in education technology advancement has left educators with variations of teaching pedagogies. Is there a right or wrong way of teaching? Hybrid teaching can be mixed and matched with many different combinations.

METHODOLOGY

Thirty-nine pre-university students for Accounting undergoing A-Levels, Australian Matriculation and Monash University Foundation Year Programme at Sunway College Johor Bahru were used for this research. The research experimented on three different blended learning methods under the supplementary model. The methods were as follows; listening to pre-class audio podcasts followed by analysing a case study in the classroom on the podcast’s topic, studying text-based materials online accompanied with taking an online quiz, which was discussed in the classroom in their next lesson and lastly, students watched videos of lecturers writing accounting equations, formats and sample questions on a tablet with narrations followed by a quiz held using class time to test their understanding. All three methods were carried out across all three programmes. After running the hybrid method for the first half of the first semester, students were given a topic test (each programme had its own topic test). Results from these tests were compared to the results of the students’ tests in the previous semester where the method of learning was face-to-face seat-in classroom. Students were also asked to participate in a survey regarding their exposure to hybrid teaching.

OUTCOME

Based on this research, it is understood that students have the adequate tools and technology to adapt to the hybrid teaching method. The majority of students achieved higher percentages in the test given at the end of this research as compared to the previous semester’s students. However, a small group of students did not perform any better as they required more explanation in various ways to gain a better understanding. In conclusion (using the survey as a reference), a higher percentage of students prefer
the Hybrid Method as they are able to dictate their learning pace leading to a better understanding. Although comparisons were made from students with zero accounting background of the programme, two different batches were used with different sets of tests due to the college’s recycling policy and time constraint. This posed a limitation to the outcome of the research.

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EFFECTS OF PEER CORRECTION FOR IMPROVEMENT OF ESL WRITING SKILLS AMONG DIPLOMA STUDENTS

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Abstract

English language teachers are constantly exploring different ways from the traditional teacher-correction method of improving ESL students' writing skills. By clearly analysing students' different learning needs and language issues, a peer-correction approach can be applied to any level of students to develop their writing skills. This paper reviews the effect of peer correction in improving the writing skills of Malaysian Diploma level students. In this study, peer correction was employed to enhance students' writing skills, especially in overcoming problems with their language conventions. The outcome of the study shows that peer correction does have a positive effect in improving the students' writing skills.

Keywords: peer correction, ESL, traditional method, language conventions

INTRODUCTION

Many Malaysian ESL students have problems with their writing, especially in language conventions (grammar, punctuation and spelling) and vocabulary due to the influence of their mother tongue (Ghabool, Mariadass & Khaseff, 2012). The situation persists into tertiary level where their writing lacks accuracy because of various shortcomings. According to Hiew (2012), this predicament is caused by various factors – teaching and learning methods, motivation, perceptions, syllabus and lesson plans, to name a
few. Research suggests that students prefer a more interactive lesson with less teacher intrusion, and are more comfortable with peer correction because they are able to discuss answers/corrections in an unintimidating manner with people of the same background (Ganji, 2009; Behin & Hamidi, 2011). This study therefore focuses on how peer correction effectively helped to improve Diploma students’ writing skills. Specific areas of language improvement had been monitored throughout the duration of the study.

Writing Problem Among Malaysian ESL Students

In general, every Malaysian student learns at least two languages, including English. As such, the advantage becomes a challenge to many of them as there is a disparity in the proficiency level between the English language and their mother tongue. Many have difficulty in ESL writing due to cultural and linguistic hindrances as they tend to do direct translation from their mother tongue or get confused with the English language conventions and vocabulary (Ghabool, Mariadass & Khaseff, 2012).

Traditional Method vs Peer Correction

Error correction is an important aspect in any language writing class. The traditional method of teacher correction is slowly being replaced by the student-centred approach: peer correction, which is deemed as less threatening with greater learner autonomy and interactivity (Sultana, 2009). Behin & Hamidi (2011) have also opined that peer correction is a suitable alternative to replace the teacher-centred traditional method. A study done on Iranian IELTS students by Ganji (2009) also proved that peer correction had a fruitful impact on the students writing performance and accuracy level as compared with the teacher correction method which was reckoned a failure. He also highlighted that there is no correct method of doing peer correction as it has to be tailor-made according to the level of the students.

METHODOLOGY

A group of 21 students, between 18 to 22 years, in their second semester of Diploma in Business Administration at Sunway College Johor Bahru was selected for this study where their English proficiency level was between average to above average. Students were exposed to four levels of treatment: Level 1: Pre-test writing (individual writing), Level 2: Pair-writing and peer correction in groups, Level 3: Individual writing and peer correction, and Level 4: Post-test writing (individual writing). Four levels of writing activity were employed for this study mainly because the lesson syllabus requires the students to do at least four pieces of writing throughout the lesson. In the pre-test (week 1), all the students had to do opinion-based writing, and the teacher did the primary checking to determine the students’ English language problems and to identify their
common language errors in writing. Then their writing errors were indirectly highlighted and taught by the teacher throughout the 10 weeks’ lesson. While the teaching took place, Level 2 activity (week 4) was conducted whereby students were divided into pairs and they had to do pair writing. After the pair writing, the students swapped their papers and evaluated each other’s work (in pairs) in class and gave feedback. In week 8, Level 3 activity was carried out with individual writing and peer correction. Finally, the teacher compared the students’ progress in writing by analysing their post-test writing. In each peer-correction activity, students not only highlighted their peers’ mistakes by highlighting the errors, but they also suggested possible answers or methods. They had to justify with their peers on the marks given for each of the evaluation factors. The teacher monitored the students’ peer-correction activity, but only intervened when they had confusion or disagreement with the error correction. However, after each level of the treatment, the teacher did the final checking on the paper to retain the quality of the error correction so that they were able to make effective and constructive peer correction. There were two variables in this study: the dependent variable was the writing proficiency which was measured through ESL writing, and the independent variable was the method of giving feedback: peer correction. The evaluation was based on the five factors of ESL writing adapted from Behin & Hamidi (2011): (1) Content, (2) Organisation, (3) Vocabulary, (4) Language use, and (5) Mechanics. Each factor accounted for 10 marks with a total score of 50 for the entire writing.

RESULTS AND DISCUSSION

In the pre-test, 3 students scored above 35 and the rest scored between 20 to 34 out of 50. 90% of the students fared poorly in vocabulary, language use and mechanics. However, in the post-test, 5 students scored above 35 and the rest scored between 23 to 34 out of 50. The peer-correction method had also greatly influenced their language proficiency in terms of vocabulary, grammar and mechanics where significant differences were recorded between the pre- and post-test. Through the teacher’s observation, it was clear that the students were receptive towards the new method because they were very comfortable while engaging in the peer-correction activities. Their discussions were sometimes cheerful or serious, but the suggestions were acceptable by the other peers. Most of them were able to highlight the mistakes and suggest answers or exchange ideas without the teacher’s help. Some students even positively anticipated the peer-correction activity where they deemed it as a competitive way of learning writing. They strived to produce good pieces of writing to minimise mistakes and avoid losing marks. Most of their writings were mature and substantial with well-developed contents rather than simple repeated ideas. Indirectly, this method boosted their motivation level and successfully improved their writing skills, especially in refining the language conventions.
CONCLUSION

The pre-test and post-test results proved that peer correction was useful in improving the ESL students’ writing skills at tertiary level. Peer correction, for instance helped students view errors as a common concern in the learning process. It also stimulated their existing knowledge, resulting in competence being reinforced or expanded. Students’ collaborative learning with their peers positively motivated them to help each other in developing their writing skills in 10 weeks with only two sessions of peer correction. Their ideas for writing progressed well with the effective peer feedback. This clearly shows that with more time and exposure, the students are able to refine their writing skills with this collaborative learning method. Accordingly, it might be concluded that students benefitted from the practice of correcting their own and their peers’ errors. Further study could be conducted on different groups of students under experimental and controlled groups to identify the significant difference between the effectiveness of peer correction for writing skill improvement and that of the traditional method.

REFERENCES


Most intermediate ESL students are able to accommodate and express themselves with advanced ESL speakers with relative ease. However, there are some intermediate ESL students who are not able to do so. This study was designed based on the Communication Accommodative Theory (CAT) developed by Howard Giles, Donald Taylor and Richard Bouhis (Anzaldua, 2004). According to this theory, accommodation is the process by which speakers adjust their patterns of communication to accomplish social goals. Some of the accommodative strategies identified through CAT are convergence, divergence and maintenance. This study aims to identify accommodative strategies used by advanced and intermediate level ESL speakers when they communicate with each other. This is observed in the classroom setting when the students are placed in groups for discussions.

Respondents for the study will be 10 advanced ESL students and 10 intermediate ESL students from Sunway College Foundation Programme.

Keywords: motivation, communication accommodative, intermediate ESL students
INTRODUCTION

Statement of the Problem

It has been a great challenge trying to strengthen the language skills of the ESL students in our country. The majority of the intermediate ESL students are facing challenges to speak in English due to several reasons such as poor listening skills and concentration span, not being able to understand long and complex sentences, limited vocabulary, and lack of confidence in abilities. According to Jenkins (2000), advanced ESL speakers can accommodate their speech according to the English level of their interlocutors, while intermediate level speakers lack the ability to do so.

One of the key factors that greatly influences the success of second or foreign language learning is motivation and that this is accepted by both teachers and researchers. According to Locke (1996), in the process of learning a language, motivation provides the primary impetus and in order to sustain the long learning process, it becomes the main driving force.

Significance of the Study

Findings can provide insights for ESL practitioners to emphasise on motivation and allow more interaction and discussion to take place between intermediate and advanced learners.

Objective of the Study

This study aims to:

- Identify the accommodative strategies used by the advanced and intermediate ESL students.

Research Question

- What are the accommodative strategies used by the advanced and intermediate ESL students?

Theoretical Framework

The theoretical framework for this study is the Communication Accommodation Theory by Howard Giles, Donald Taylor and Richard Bouhis (1980). This theory explains the process by which the patterns of communication are adjusted in order to accomplish social goals. Communication accommodation is a vital part of any classroom discourse, especially between the advanced and intermediate ESL students. According to West and Turner (2010), CAT “considers the underlying motivations and consequences of what happens when two speakers shift their communication styles”. Therefore, by examining
the strategies used by the advanced and intermediate ESL speakers and what motivates them, it would help to improve their proficiency level and interaction.

**Conceptual Framework**

According to Giles et al., (1973), as members of the society, we need to adapt to our environment. Also as communicators we learn to adapt and accommodate each other, be it in speech or texting. He further explains that the theory addresses when we do this, how we do this, how we make our adjustments, and why we make such adjustments. The Communicative Accommodation Theory (CAT) helps to examine the ways we accommodate our communication with one another to become more alike or by defining our differences. This theory takes note of two communication tendencies which are, the convergence and the divergence. Both these tendencies can be mutual or non-mutual.

**METHODOLOGY**

The methodology of the study will involve administering an English test to determine the English proficiency level of the respondents. Then, the students will be placed in groups and a discussion topic will be presented to them for discussion. Their conversations will be recorded and transcribed. The data gathered will be coded according to the different accommodation strategies used. The next procedure would be to administer a questionnaire to gather information on the motivation for the choice of strategies. These are done in classrooms during discussion where the lecturers are there to observe the communication taking place. Findings could provide insights for ESL practitioners in assisting ESL learners to better communicate and accommodate speakers from different proficiency levels.

**REFERENCES**

Abdelrahim, I. (2012). Research on: Motivation to learn English among college students in Sudan. Aljouf University, Arabia, Canadian Center of Science.


The study was conducted on 90 Monash University Foundation Year (MUFY) students at Sunway College who had passed Chemistry Unit 1 (Chemicals Connections) and currently taking Chemistry Unit 2 (Chemistry and Industry) via a quantitative method utilising a five-point Likert Scale. The results highlighted that students enjoyed the flexibility of the Flipped Classroom method. They were able to interact with the teacher more frequently; they enjoyed the increase in learning activities in class; and, they appreciated the reduced amount of homework. Part of the data show students’ perceptions of their own engagement, communication and understanding all increased as a result of the Flipped Classroom. Implication of the research highlighted that Flipped Classroom was indeed an innovative approach in teaching.
outlets which have recently reported on this new teaching model. Even though the Flipped Classroom is currently being presented as a new teaching innovation, it has been in use for well over a decade. There have been educators as far back as the late 1990s who have flipped their classes (Baker, 2000).

However, the amount of literature and studies that pertain to the Flipped Classroom is limited especially for Chemistry. Musallam (2010) examines the use of screencasts, a video recording of a computer screen with or without narration, as a pre-training technique for teaching advanced high school chemistry students. The focus of the study was to determine the effects screencasting had in managing intrinsic cognitive load, the natural complexity that a specific knowledge domain offers, and student performance. Upon looking at pre- and post-test results, Musallam concludes that screencasting significantly decreases the intrinsic load and increases performance on assessments. Strayer (2008) highlights that, in general students enjoyed the innovation and cooperation aspects the Flipped Classroom offered. However, they were less satisfied with the structure of the class. “The analysis showed that the variety of learning activities in the Flipped Classroom contributed to an unsettledness among students (a feeling of being “lost”), that students in the traditional classroom did not experience”. Strayer concludes by offering a number of suggestions to educators who consider the Flipped Classroom. He believes that students should have a choice as to how to interact with the course content, the activities in class should be less open-ended and more step-by-step, and lastly, that students be given significant opportunity to reflect on their own learning.

**METHODOLOGY**

The study was conducted on 90 Monash University Foundation Year (MUFY) students at Sunway College. These students had passed Chemistry Unit 1 (Chemicals Connections) and currently were taking Chemistry Unit 2 (Chemistry and Industry).

Short video lectures of five to seven minutes each are viewed by the students at home after the class session on the topic of “Rate of Reactions and Equilibrium”. The video lectures were selected from the online repository as the key ingredient in the flipped approach. The performance of these students was measured by the online quizzes and activities while watching the videos which let them move at their own pace, rewind to review portions, but not skipping through sections that they already understand. The performance will also be compared with the test results based on face-to-face lectures in class.
Students were given about 10 – 15 minutes to complete the questionnaires. The survey consisted of 8 five-point Likert Scale items which supplied the quantitative data for the study. There were also two open-ended questions at the end of the survey which provided students with the opportunity to describe their own experiences and offer feedback, something not possible with a Likert Scale questionnaire. The data collected were subjected to data analysis and the results are planned for presentation.

RESULTS AND DISCUSSION

Students reported that they enjoyed the flexibility of the Flipped Classroom. They were able to interact with the teacher more frequently. They enjoyed the increase in interactive learning activities and appreciated that there were other ways of learning Chemistry other than the traditional paper and pen. Part of the data showed students’ perceptions of their own engagement, communication and understanding all increased as a result of the Flipped Classroom. Students benefitted from watching video recorded lessons.

When developing this Flipped Classroom, a concern that arose was that students would be less engaged and would request traditional lecture instruction. Students reported that they benefitted from being able to watch the video at a time that suited their schedule and their learning needs. They also appreciated that the videos could be paused, rewound or even fast-forwarded when they understood a concept. Nevertheless, this technique cannot be used for all subtopics due to time constraint.

CONCLUSION

Generally, there was positive reception from students since the majority of the students enjoyed the Flipped Classroom and believed it supported their learning as they are a generation of 21st century learners. The adoption of Flipboard as a current teaching methodology is indeed a step forward towards a more interactive and engaging approach in the teaching environment.
REFERENCES


EFFECTIVENESS OF LABORATORY INVESTIGATIONS IN DEVELOPING SCIENTIFIC INQUIRY SKILLS

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Abstract

This study examined the effectiveness of laboratory investigations in developing scientific inquiry skills among the Australian Matriculation students enrolled in Chemistry (ATCHE) by assigning a set of tasks on experiment design and conducting laboratory investigations. Mean of total marks achieved was 13.52. Respondents also answered a survey on the effect of their weekly laboratory investigation session in developing scientific inquiry skills. Majority of the respondents were found to have rarely constructed a hypothesis statement on their own (60%) and designed a laboratory procedure (69.9%). 58.7% of the respondents hardly reflected on the ethical issues of the investigation. Almost half of the respondents agreed that they never evaluated their peers’ work (49.1%). More than 65% of the respondents stated that design of results tables, analysis and discussion of results and drawing of conclusion were guided by their lecturer on a weekly basis.

Keywords: laboratory investigations, scientific inquiry, experimental design, data analysis

INTRODUCTION

It is a widely acknowledged fact that student-centred learning is a better way to elicit and gauge student’s individual learning capabilities and critical thinking compared to traditional teacher-centred instructional methods. In the field of science education, the concept of “learning by doing” (Mattingly et al., 2008) is crucial to enhance the
comprehension of complex “abstract” theories discussed in classrooms by connecting them with observations. This is achieved by incorporating laboratory investigation in the science curriculum. A school laboratory investigation (also referred to as laboratory practice) is defined as an experience in the laboratory, classroom, or the field that provides students with opportunities to interact directly with natural phenomena, or with data collected by others using tools, materials, data collection techniques, and models (National Research Council, 2006).

Generally, the laboratory practices in ATCHE focuses on confirmation of established scientific relationships through the execution of procedures provided by the curriculum developers. This form of confirmatory lab instruction hardly develops the students’ conceptual or epistemological understanding. Moreover, students were not given sufficient time to interact and reflect on central ideas in the laboratory since they are usually involved in technical activities. Therefore, students frequently fail to be involved in any meaningful form of inquiry as the execution of procedures fully disconnect students from their conceptual understanding associated with subject matter (Bell, 2004; Hofstein & Lunetta, 2004).

According to the National Science Teachers Association (2007), a properly designed laboratory investigation should have a clear objective that is clearly understood by students, emphasis on scientific processes as the medium to convey content and involves ongoing reflection and discussion. Laboratory investigation provides the opportunity for students to work independently in applying appropriate techniques to define and solve problems, and draw conclusions based on quantitative evidence. This experience enables students to understand and engage in a process of constructing knowledge, as well as, developing correct laboratory practices which are an essential part of the inquiry process.

The aim of this study is to gauge the effectiveness of laboratory investigations in developing scientific inquiry skills. The results obtained would provide an insight on improving the current laboratory practices employed in the Chemistry course of the Australian Matriculation curriculum. In addition, this research hopes to spur the interest among students on laboratory practices as a way to observe and reinforce the theories learnt in the classroom.

**METHODOLOGY**

The research was conducted using 62 respondents enrolled in Chemistry (ATCHE) in the Australian Matriculation (AUSMAT) Programme. Two sets of tasks were prepared, one of which was on the design of a scientific research (Task 1), and conducting a laboratory investigation (Task 2). Task 2 carries a total of 20 marks. Task 1 was given 1 week prior to Task 2. The respondents were also required to answer a survey adapted from
University of Minnesota Department of Neuroscience and Department of Curriculum and Instruction (2015), on the effect of their weekly laboratory investigation session in developing scientific inquiry skills. The test scores were tabulated and survey data were analysed in this study.

RESULTS AND DISCUSSION

<table>
<thead>
<tr>
<th>Task 2</th>
<th>Marks Allocated</th>
<th>Mean Marks</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collection</td>
<td>10</td>
<td>7.09</td>
<td>1.44</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>10</td>
<td>6.44</td>
<td>1.68</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>13.53</td>
<td>3.12</td>
</tr>
</tbody>
</table>

*Table 1* Mean and Standard Deviation of Student’s Task Scores

![Survey: Students’ View on Laboratory Investigations](image)

*Figure 1* Percentages of Students’ Views on Various Aspects of Laboratory Investigations
Table 1 shows that respondents have generally performed well for Task 2, with mean marks of 7.09 for Data Collection and 6.44 for Data Analysis. Based on Figure 1, almost 60% of the respondents have never or rarely constructed a hypothesis statement on their own for an investigation. Besides, 69.6% of the respondents stated that they rarely designed a laboratory procedure and 58.7% hardly reflected on the ethical issues of the investigation. Figure 1 also shows almost half of the respondents agreed that they never evaluated their peers’ work with a percentage of 49.1%. This proves that most laboratory investigations that were conducted are a confirmation of established scientific concepts or principles. Therefore, platforms were not provided to encourage students to employ scientific methodology in solving a scientific problem.

In addition, more than 65% of the respondents stated that the results table, analysis and discussion of results and drawing of conclusion were all done on a weekly basis with the lecturer. This indicates that interpretation and reflection of investigations were done collaboratively and students were not given sufficient time or opportunity to self-reflect and communicate their findings. Thus, they could not relate their conceptual understanding on the subject matter based on the observations of their investigation, and eventually failing to engage in any form of inquiry. However, results from Table 1 prove that students are actually capable of designing their own investigation if they were given ample time to research and reflect on the theories they have learnt in the classroom.

**CONCLUSION**

The findings show that more emphasis should be given to students designing and conducting laboratory investigations as this will allow them to actively engage in the development of disciplinary expertise, through scientific inquiry skills. This study provides some insight into how laboratory investigations can be structured to foster scientific inquiry skills.
REFERENCES


As educators, what are the changes and improvements that we would need to make in terms of teaching and learning? I think there are no clear answers to these questions, and that is why we are challenged to ‘rethink, redefine and reinvent’ – the theme of this Conference.

DR LEE WENG KENG
Chief Executive Officer
Education and Healthcare Division, Sunway Group

Lessons in the classroom should reflect lessons in life. Lessons which allow some experiment within the safe confines of a teacher’s nurturing and guidance will go a long way in learning values, sharpening skills and developing character, which will in turn contribute to nation building and the global sustainability we all crave.

DR ELIZABETH LEE
Senior Executive Director
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The Proceedings of the Sunway Academic Conference is a series of publications detailing papers presented in the conference organised by the staff of Sunway College in collaboration with staff of other organisations. The Proceedings provide a platform for academic staff to share their research findings and stimulate healthy professional discourse on topics of mutual interest.