

Learning Improvement and Teaching Enhancement

2019 Conference Proceedings



**UNIVERSITY
OF MALAYA**



Learning Improvement and Teaching Enhancement Conference 2019
24-25 April 2019, The Pearl Hotel, Kuala Lumpur

Learning Improvement and Teaching Enhancement Conference 2019

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Edited by:

Dr. Farrah Dina Yusop

Dr. Nur Azah Hamzaid

Dr. Zahiruddin Fitri Abu Hassan

Dr. Amira Sariyati Firdaus

Academic Enhancement and Leadership Development Centre (ADeC), University of Malaya

Typesetting and cover by:

Nurul Salwani Mohamad Saadon

Muhammad Afiq Dzulkifli

Ummu Saadah Zubir

Ferlynda Fazleen Jamaludin

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PREFACE

Welcome to our third Learning Improvement and Teaching Enhancement Conference 2019. I believe we are all here to embrace the knowledge and best practices shared by all teachers and academics who are truly 'teachers at heart' – the ones who are keen to research on their own practices for the benefits of their students through the Scholarship of Teaching and Learning (SoTL).

This event marks the high appreciation and acknowledgement of Teaching and Learning Innovation practiced by all teachers, lecturers and educators from around the world. This is an excellent avenue for academicians to share and disseminate the Scholarship of Teaching and Learning (SoTL) and Action Research findings that have been implemented. It is the perfect platform for teachers and academics of all domains of the education institutions to research on their own teaching and learning practices and share their findings.

This conference provides an opportunity for teachers at heart to try new things in their classrooms, and be awarded for it. This culture should be further encouraged to promote better learning experience among students and children in schools and higher learning institutions, while we reflect upon the methods and principles of knowledge dissemination in and outside of the classrooms. On behalf of the team in ADeC, we hope that this conference will continue to carry the momentum of many more successful stories to be shared, and become the catalyst to a striving and healthy teaching and learning culture in our beloved nation.

We look forward to explore the journey of our teachers and educators in their teaching and learning practice, and I am sure we can all learn from each other.

DR NUR AZAH HAMZAID

Learning Improvement and Teaching Enhancement Conference Chair 2019

KEYNOTE SPEAKER:
Learning Space Design and Utilisation:
Lessons from Finland
by Mr. Pasi Mattila



In his conference and workshop presentations, Mr. Pasi Mattila (CEO, Finpeda Oy.) will discuss the design of the School of the Future and development of future learning environments including new pedagogical methods and phenomenon-based learning approach (new curriculum 2016 in Finland).

Innovations in education enable the overall improvement of traditional school. The article introduces the concept “Cycle of Change” describing the key elements necessary for renewal school working culture. Key elements are changes in pedagogy, architecture and technology. Special attention will be paid to the importance of participatory planning of future school. Through this short introduction, Mr. Mattila wants to share his vision and initiate change of working culture at schools, new pedagogical approach, school building, design process and ICT.



Figure 1: Hiukkavaara Multipurpose house (Lukkaroinen Oy).

How to create the School of the Future – revolutionary thinking and design from Finland:

The key factor in the development of an education system is to change the operational and pedagogical culture at schools. The operational culture embraces the topics of leadership, teachership, in-service training, technology, and architecture. It takes time and patience to change the operational culture. If you decide to start now, you will see the first concrete changes in working culture after two or three years. The thinking of the whole community and the surrounding society needs to change. At schools, the change culminates in the development and introduction of the pedagogy, architecture, and technology. Most concrete changes will be visible in physical school building. Physical environment is a change driver for other changes. When you have building project, you should also have strength and resources to try different approach and make the change and invest pedagogical design and training of teachers and staff.

Cycle of change

Changing the operational culture needs to be a well-led process and set as a common goal in the strategy of the organization. The elements of the development cycle, 'the cycle of change', are introduction and goalsetting, leadership, pedagogy, architecture, technology, capacity building, and assessment. Usually the change process begins with an introductory session and workshop, where the current way of teaching and the expectations of the surrounding world are reviewed and reflected. The change process requires change in leadership and continuing in-service training.

School development tool

A school development tool is needed to plan and support the change of operational culture, design of a new school building and transformation of learning environments. The purpose of the School Development Tool (SDT) is to describe the present situation and define the target state. The development plan analyses the essential stakeholders and factors affecting the school's activities such as learning solutions, leadership, technology, spaces and furnishing, and the influence of surrounding environments as well as the cooperation networks. The School Development Tool creates a framework that supports the school development and defines the vision and goals as well as the level of the implementation set for each goal by different stakeholders.

Participatory planning process

The new school and educational space planning needs to always base on a functional and user driven starting point. This applies 1) for the renovation of an old school 2) for the designing the classroom of the future and 3) for the building of a new school of the future. The teachers and all stakeholders (e.g. headmaster, teachers, students, parents, ICT experts, cleaning ladies and caretaker) will not commit to working in an environment, if they do not understand its significance and have not been able to influence its design.

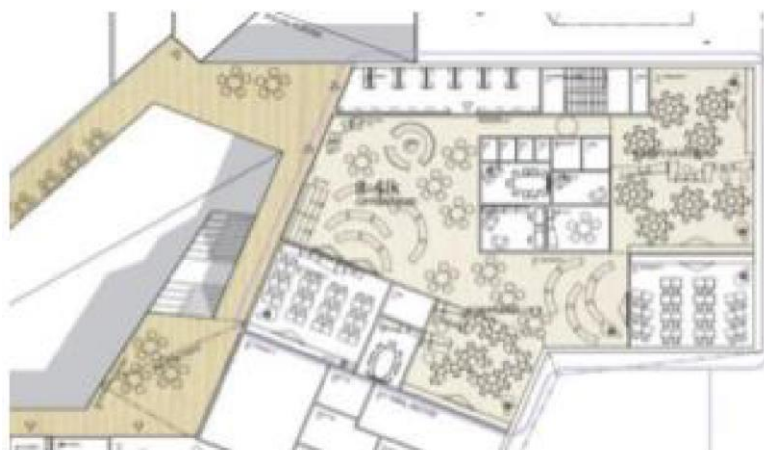


Figure 2: Homespace area for 3rd and 4th graders in Hiukkavaara (Lukkaroinen Oy.)

A new school building is always an opportunity. Investments bring resources which must be utilized sensibly. In constructing future schools, attention is paid to the function of learning

environments, to the formation of learning community, to the study of the functioning of spaces and their shared use, to furnishing, to interior design, and to the audio-visual design as well as the utilization of teaching and educational technology. These issues affect the construction of teamwork and the operational culture at school.

How does your new school look like?

Learning environment has remained the same for a long time. Teacher centered classroom, where students passively receive knowledge has been mainstream in our school design. In traditional school corridors and lobby areas are usually empty places, without any learning purpose. Outdoor spaces are seldom used for learning. In the 21st century school design, there are almost no corridors. Instead, all places should serve as learning spaces. Learning environments are open, flexible learning areas where there is bigger project working area, home spaces for each year groups and right desired combination of smaller and bigger closed spaces. These spaces are designed for collaboration and team work. By using movable walls, learning areas are easy to connect with each other's and then vary the use of space according to the need. Furniture and technology adapt to the end-user needs and for different age and size user groups. Learning environment includes nests, made for individual and pair, group and team working. It is also common that some new furniture is being also developed along a new school project. Learning area can be modified for traditional groups, but also for small, big or hybrid groups and blender learning. Special attention is dedicated to special care education spaces and learning areas, both gifted and special students personalized learning spaces. Outdoor environment, school yard and neighborhood around the school motivates students to move and learn.

Multidisciplinary teamwork

Building the School of the Future is a co-creation process. It is partnership between educators and designers during design process and construction phase. Pedagogical designer and architect do seamless co-operation on a process to sketch-up a vision for a new school, draft design and final design phases. Usually need analyses and project plan comes from customer (private school operator, city or government) and pedagogical planner role is to act as an intermediary between users and other designers e.g. architects, structural engineers, acoustic and audio-visual planner or interior/exterior designers. Design phase is a team-work, where all different area experts have their own role to make the best possible plan for a new school. Shared common vision and pedagogical plan controls the work of this expert group. At the final construction phase, the role of a pedagogical planner change from design and planning more concretely towards teacher training and competence building for staff how to work in their new school building. While architect, supervisors and construction experts take care of the construction phase and finalize the building itself.

In a participatory planning process end-users are being involved into planning process at all stages. They can give their feedback according the need in all stages, not freely, but well defined questions. In early stage, it is much more cost-efficiently to do necessary changes e.g. change wall position and make big difference into working culture. In this participatory planning process, 3D modelling, planning and use of collaboratively virtual worlds are

becoming more and more important tool and contributor to describe and make transparent the design process. The term 'learning environment' refers to both the traditional physical, as well as the virtual (digital) learning spaces. A Virtual 3D environment can be used to enable participatory planning of the school building before it is finished in real world.

Finpeda Virtual Space (FVS)

The modern virtual 3D learning and training environments are web-based. What we used to know as a homepage will soon be referred to as a home space. Finpeda Virtual Space is one of the most advanced virtual solutions for a browser based multi-user social collaboration and project work. You can choose one of the ready-made virtual learning spaces, build your own, or order tailor-made virtual learning spaces. Each virtual space can be furnished and equipped with virtual tools, like tablets and laptops. Finpeda Virtual Space is a unique learning platform for distance learning, gamification, and for example for the participatory planning of a new school building. In a school building process, it can be used as a project presentation tool, big room for the whole planning team, teachers in-service training environment, interior and technology design tool and at the end as a learning environment for teachers and students.



Figure 3: Finpeda Virtual Space (FVS) technology (Finpeda Oy.)

Realistic social collaboration and interaction in 3D

Virtual learning environments create new possibilities for social communication, interaction and distance learning. In the virtual immersive environments, interaction takes place via avatars that represent the users. Acting via avatars increases the sense of presence and you feel virtually "face-to-face". Learning in the virtual space is very social and interactive. In the Finpeda Virtual Space (FVS), students can work on phenomenon-based projects together like in real world and physical school building, when it is finished.

Fire safety training in a 3D learning environment as an example of gamification:

The virtual learning and educational environments can be used in many ways to develop practical skills on different levels of education. There are for example fire safety trainings for schools using realistic models of real school buildings. In these simulation games, students walk as avatars inside a realistic virtual model of their school and learn about safety. What to do in the case of fire or in another emergency situation? How to find the emergency escape routes from your classroom in the school? The gamification and the use of virtual reality as

learning platform are effective ways of learning important topics and acquiring necessary skills. Using virtual reality makes it possible to develop simulated and authentic learning situations for phenomenon-based teaching. Especially the younger generations are motivated by the virtual reality and the game-like approach.

Conclusion

In Finland, pedagogical design and participatory planning process started around five years ago, since that time it has opened a whole new world in school design and planning of future school and learning spaces. New school buildings are open and flexible multipurpose houses and community learning centers, where people living around the school can enjoy many services in different administrative units e.g. daycare, school, high-school, youth facilities, library and sport facilities. The school building must be in efficient use from early in the morning until late evening, also during weekends and summer time. Then it is made for the purpose, it serves not only school use, but the whole community and life-long learning. It is very important, that new building is being planned based on the needs of end-users and for their desires.

There is not much research information about physical learning environment and its effect to the learning results. Anyhow, existing OECD research point out, when new learning environment is being developed well, it increases motivation for learning, teamworking skills and use of new methods in all aspects, bringing also better learning results in a long run.



Figure 4: Virtual 3D model of Pudasjärvi log school (Finpeda Oy.)

The log school in Pudasjärvi was first project, where own pedagogical designer was required. This school is healthy, safe and ecological. The wooden material (log) creates a unique acoustic environment and warm feeling inside. Pudasjärvi log school is the biggest log school in the world. It's been open since august 2016. Another great example and even more modern pedagogical design will be multipurpose house Hiukkavaara in City of Oulu. Currently it is under construction and will be opened august 2017. Finnish Education Study Tour (FEST) -visit organized by Finpeda introduces both best practice examples and many new ideas from how to design modern learning environment.

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We still need to understand, that the School of the Future is not a building; it is a culture of competence development that has an active role in the process of developing the information society. By combining the innovations in pedagogy, architecture, and technology, we can create a better future for our students. The book “How to Create the School of the Future – Revolutionary thinking and design from Finland” explains the methodological tools and processes of building schools of the future.

“You do not know how to ask the right questions, if you do not know they exist in the first place.”

PLENARY FORUM: Innovating Education for the Nation

Moderator: Ir Dr Mas Sahidayana Mohktar, Head UM STEM Centre

Panel 1: Puan. Zaliza Alias, Founder, GAINS Education Group

Panel 2: En Sirhajwan Idek, Finalist, 2017 Global Teaching Prize

Panel 3: Assoc. Prof. Dr. Mohammad Tazli Azizan, Recipient, Global LearnTech Award, World Education Congress 2018

Education has been experiencing changes due to the effects from external environment relating to the future of work, constant changes in education policies, and even the change in the family values. These rapid changes, though often well intended, has led to not deliberate effects towards the value of education. With the arrival of the 4th Industrial Revolution, innovating Malaysia's education sector is a must. This is to prepare our nation to be well-suited with a world where technology is at the forefront.

This forum brings you three experienced people who have innovate the education. Teacher Zaliza Alias, the Founder of Idrissi International School, Mr. Sirhajwan Idek, the 2017 Finalist of the Global Teaching Prize and Assoc. Prof. Dr. Mohammad Tazli Azizan, the recipient of the Global LearnTech Award, World Education Congress 2018.

Teacher Zaliza Alias will share her experience on redesigning early childhood education in Malaysia. She will tell her success story on the establishment of GENIUS AULAD and the formation of IDRISSE International School. These stories will enlighten us on how Early Childhood education should be seen as a very wide, broad and balanced field to be explored by educators out there and how redesigning it can take place.

Mr. Sirhajwan Idek will discuss the significance of vocational education in developing students with great skillset that can adapt to the continuously evolving job market and industries. With the mission of our nation to produce manpower with hard skills and soft skills that can thrive in the Industry 4.0, it is essential to provide students with solid purposes, clear paths and engaging platforms that can help them grow professionally and personally while gaining new skills and experiences. He will share on how to prepare ourselves for changes that we cannot precisely predict, and by what means we can embrace the optimism of our capabilities in changing ourselves.

Assoc. Prof. Dr. Mohammad Tazli Azizan who is the Director of Center for Excellence in Teaching and Learning (CETaL), Universiti Teknologi PETRONAS will be sharing his experience in promoting lecturers to become more creative and innovative in teaching university students. As well as on how upgrading infrastructure and teaching aids can led towards innovation in teaching and learning at universities. He will deliberate the way of conducting research in teaching technology and how it can transform our nation education system.

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At the end of the session, the critical issues and major challenges facing Malaysian education and the way forward will be documented and later submitted to the parties concerned.

PLENARY SESSION:

Optimising Collaborative Learning Spaces for Immersive Blended Learning Experience in Higher Learning

by Dr. Zahiruddin Fitri Abu Hasan

ADeC, University of Malaya

The design of the classroom plays an important role in informing and influencing the learning activities that could be performed in them. Conventional classes where all learners face the educator at all times limits the way in which they could interact with their peers. Specially designed classroom that have the design intent to encourage and facilitate interaction and collaboration between learners have been shown to support learners in constructing knowledge. Equally important, is the educator's ability to optimise the use of the specially designed collaborative learning classes i.e the learning spaces. They will need to be trained to use them otherwise the well-designed spaces would just be another lecturing space.

Blended learning, defined as the integration between face to face learning facilitation with online and e-learning, may provide opportunity to increase learning engagement of the learners, and enable concepts such as flipped classroom to be conducted successfully. The role of the educator will be made critical in the successful implementation of the blended learning initiative as they will become a facilitator to design learning that is contextual and appropriate towards the needs of the learners.

When these two concepts of collaborative learning space and blended learning merge, the learning experience of the learners will be made richer with the affordance of the space that supports collaboration designed by the educator to happen within the learning space. The creation and construction of knowledge through collaborative activities may be conducted in the physical spaces and the virtual space as an immersive experience for the learners. Learners can use the virtual space to create and curate their learning artefacts aided by meaningful interactions with their peers made possible by the collaborative layout of the learning space.

The soft skills outcomes of the learners can be designed to take advantage of the collaborative learning process. The emphasis on social skill can be brought online as the digital soft skills that we could see lacking in the new generation of learners. This two-pronged approach is the new innovation in pedagogy that is still not gaining traction, as the connection between the two is still vague, and not being thoroughly researched.

Finally, we will present a research work on how educators in the university are using the collaborative learning spaces that they have designed and reveal the opportunity still present to optimise the use of the blended learning approach to realise the full potential of the collaborative learning spaces.

PLENARY SESSION:

Social Activists Inspiring Eduvation

by Puan K.A.Razhiyah

*Founder, Projek Teratak Spa/Finalist
2018 Global Teaching Prize*

K.A.Razhiyah began her teaching career in 1985 with typical students, later ventured into special education in 1989 for more challenge, excitement and fulfillment. At present, she is a Special Education Specialist Teacher in Panji Secondary School, Kota Bharu, Kelantan, Malaysia. She wrote varieties of books including 4 books on Special Education which have been used as reference for universities, colleges, teachers and parent. She also wrote nineteen television scripts, mostly about special needs children, which have been aired on national television.

Delivered nearly 80 lectures throughout Malaysia and presented papers at the 1st International Conference on Special Education in Bangkok and The Digital Education Show Asia in Kuala Lumpur. She had given 18 hours training to Special Education Teachers of South East Asia on Regular Course Human Sexuality Education for Children with Special Needs, besides sharing knowledge at Manzil Centre for People with Disabilities, in Sharjah, UAE, chosen as a speaker at EduTECHAsia Suntec, Singapore, presenter at Hong Kong Academy in Hong Kong and a trainer at Hai Duong Center for Special Education, Hanoi, Vietnam.

She received 12 Malaysian Education Awards throughout her 34 years of service and also received 2 international recognition as Top 50 Finalist Global Teacher Prize 2018 out of 30 000 nominations by Varkey Foundation, London, UK and a winner of SENIA Advocacy Award 2019 – (Special Education Network in Asia) held in Hong Kong in Feb 2019.

SYNOPSIS

Projek Teratak Spa: People with disabilities faced numerous challenges with lack of skills or qualification which results in unemployment. Due to interest in physical wellness increases, SPA therapy became popular and emerged as important profit centres for beauty salon, resorts and hotels. Most people assumed typical people are expertise in beauty line and have overlooked the potential of people with disabilities in this field. To train them is something extraordinary, not an easy task but it is possible.

Special Education 'Teratak Spa' of Panji Secondary School, Kota Bharu, Kelantan, revealed that people with disabilities can enhance an individual's self-confidence and overcome barriers successfully. To explore the entrepreneurship world, they also create products and learn marketing through Pandan Oil for hair treatment, Citronella Oil as massage oil, Lip Gloss for dry lips and Cleansing Milk for face. With training, encouragement and commitment, people with disabilities do show equivalent qualities and talent.

PLENARY SESSION:

Social Activist Inspiring Eduvations

by Puan Sharifah Sharina Syed Aswad

Vice President, Projek Iqra' Charity Association of Malaysia

Projek Iqra' is a registered NGO under ROS since 2013. Founded by 3 friends who studied together in UTM Kuala Lumpur in 1998.

Projek Iqra' focusing on education and welfare issues. Main target are underprivileged children and teenagers who are left behind in school.

Currently there are 2 major projects going on. Kelas Rakyat and Peluang Kedua.

Kelas Rakyat is a free tuition classes tailored specifically for students who are left behind in school. We use special modules design by i-SINA. Currently there are 9 locations of Kelas Rakyat in KL, Selangor, Kedah and Negeri Sembilan.

Peluang Kedua is program for those above 15 years old who are not into academic and wanted to do skills program. We help underprivileged students who can't afford to go to skills program by sponsoring entrance fee and monthly allowance. We also monitor their progress closely.

We work closely with Sekolah Henry Gurney for this program as well as students of Kelas Rakyat. Currently there are 15 students benefiting from this program studying in various skills program such as electrical, automotive etc.

PLENARY SESSION:

Social Activist Inspiring Eduvations

by Assoc. Prof. Dr. Nahrizul Adib Kadri

*Department of Biomedical Engineering,
Faculty of Engineering, University of Malaya*

Dr. Nahrizul Adib Kadri is an Associate Professor at the Department of Biomedical Engineering, Faculty of Engineering, University of Malaya (UM). He completed his undergraduate degree in biomedical engineering from UM in 2001, and received his PhD from the University of Surrey, United Kingdom in 2011.

He was UM residential college fellow since 2004, and a principal in two residential colleges since 2014. It is in these capacities that he was involved in numerous community engagement programs, from organising running events to distributing food for the urban poor and homeless in downtown Kuala Lumpur. He was instrumental in founding Projek Yusuff, a volunteering program for UM students to help underprivileged children of PPR Pantai Ria, Pantai Dalam, Kuala Lumpur. This particular program was established in 2015, and was featured in Harian Metro, Kosmo and TV Al-Hijrah, among others.

This father of three boys currently is the principal of the Raja Dr. Nazrin Shah Residential College, UM, and currently enjoys writing and sharing UM stories to the mass media, where he contributed PR value in excess of RM50 million since 2015. He strives to live healthily, and lives by the adage: "If not us, then who? If not now, then when?"

SYNOPSIS

Projek Yusuff: Potential Solution Provider for Underprivileged Children of PPR Pantai Ria: Projek Yusuff was established in 2015, and started out as the strategic partner for an educational-based NGO, Projek Iqra'. For two nights every week, a group of University of Malaya (UM) volunteers from various faculties, will spend quality time with selected children from PPR Pantai Ria, Pantai Dalam, Kuala Lumpur. Most of the children do not possess the required reading and writing skills for their age, which in turn affects their academic performance and social development. With our intervention in doing Bahasa Melayu, English and Mathematics exercises, along with fun learning sessions, and visits to KidZania, fire station, and the Faculty of Engineering UM, these children are now much more confident going to school. For the UM volunteers, Projek Yusuff provided a platform for them to explore their role as the future agent of societal changes, even before graduating.

ORAL SESSION ABSTRACTS

Day 1: 24th April 2019 (Wednesday)

Session 1 | Venue: Phoenix Ballroom

Time: 11.00 am – 1.00 pm

Paper ID: A-01

A Global Place in a Learning Space: Changing Conceptualisations of Literature Education

Lim Jia Wei¹

¹*Faculty of Education, University of Malaya; jwlim@um.edu.my*

Lim Jia Wei is a senior lecturer with the Department of Language and Literacy Education, Faculty of Education, University of Malaya. She obtained a Masters of Arts (English Literature) in University of Malaya before furthering her studies in the University of Cambridge where she completed an MPhil in Education Research and PhD in Education. After focusing on STPM Literature in English teaching, learning and development for her dissertation, her main research interests and publications now revolve around literature pedagogy, literature assessment and post-compulsory education. She is presently involved in a research project that seeks to construct a Malaysian Literacy Framework.

Set against the increasing fervour for digital technological advances, this presentation goes back to basics for two reasons; first, to recognise that in many spaces access to latest technology is a challenge, and, second, the use of authentic objects in the classroom is sometimes underestimated or taken for granted. Therefore, this research study draws on Hutchin's (2005) work on conceptual blends to explore how realia may function as a material anchor for the cognitive development of concepts. This study utilises a large printed world map as realia in a class of ten undergraduates for one semester with the aim of increasing their awareness of the range of texts and rationale for literature education. Through constant comparative analysis of classroom discourse, written reflections and participant artefacts as data, this presentation traces the expressions of their developing conceptualisations of literature education. It hopes to provide an example of how a global perspective may be cultivated even in a low-tech classroom environment, serve as a reminder of the valuable potential of realia in the classroom, and contribute to the theoretical field of conceptual blends.

Keywords: literature education, conceptual blends, realia, conceptualisation

Paper ID: A-02

Maximizing Effectiveness of Learning Space in University of Malaya through Flipped Classroom Approach

Wong Seng Yue¹, Soong Ming Foong², Kannaki Vaithlingam¹

¹ Centre for the Initiation of Talent and Industrial Training (CITra), University of Malaya; ² Faculty of Engineering, University of Malaya; wongsengyue@um.edu.my

Dr. Wong Seng Yue currently is a senior lecturer in University of Malaya, Kuala Lumpur, Malaysia. He obtained his PhD in National University of Malaysia (UKM) in 2012. In 2015, he is awarded Exemplary Meritorious Academic Staff (EMAS) from Taylor's University Malaysia due to his academic achievement in introducing gamification in teaching and learning process via Prezi. He also won one gold and two silver medal awards in IIDEEL competition, UniSZA in 2018. His latest research interests are gamification, Massive Open Online Course (MOOC), e-Learning, learning technologies, Game-Based Learning (GBL), Augmented Reality (AR) Games and Virtual Reality (VR) Games.

This study aimed to assess students' perceived learning experience and performance in General University Course by employing flipped classroom approach, as well as to evaluate the effectiveness and feasibility of implementing flipped classroom in general university course teaching. This research involves three phases, which are preliminary analysis, design and develop, and implementation / assessment & evaluation. During phase one, literature review is conducted to determine issues, problems and needs from the students in their learning process. Critical analysis will be carried out to find out the features needed by the students in the design and development of proposed "flipped classroom" in general university course teaching. Next, "Flipped classroom" is designed and embedded the features which are required from the students in Basic Entrepreneurship Enculturation. Before students participate the flipped classroom learning activity, they need to answer the pre-survey questionnaire on their interest in entrepreneurship. This course will be taught by using flipped classroom approach which is implemented week 9 to week 14 of the semester. Lastly, after they have participated flipped classroom approach, they will conduct post-assessment and post-survey regarding their interest in entrepreneurship, attitude towards flipped classroom and perceived effectiveness of flipped classroom. There are 154 university students have participated this study. Evidences and perceptions are gathered from the student surveys. Quantitative study is employed to analyze the data. The overall results have shown that the implementing of flipped classroom in "Basic Entrepreneurship Enculturation" course teaching and learning has a great impact on students' interest in entrepreneurship. However, the flipped classroom approach do not show significant influence or impact on students' academic performance. There are three strong relationships among students' attitude towards flipped classroom, perceived effectiveness of flipped classroom, and their interest in entrepreneurship. Furthermore, there are statistically significant differences in students' interest in entrepreneurship before and after the flipped classroom intervention in their

course. Perceived effectiveness of flipped classroom and attitude towards flipped classroom can affect students' interest in entrepreneurship, which contributes 66.9% of the variances. The flipped classroom approach is expected to revolutionized lessons and learning activities quality as it increases student focus in their classroom learning.

Keywords: flipped classroom; learning space; student-centered learning

Paper ID: A-03

Space Matters: The Impact of Mobile Augmented Reality (AR) from Student's Perspective

Vinothini Vasodavan¹, Dorothy DeWitt¹, Norlidah Alias¹

¹Faculty of Education, University Malaya; vino1905@gmail.com

Presently, she is a PhD candidate in Department of Curriculum and Instructional Technology in UM. She is working with LeapEd Services Sdn Bhd project of facilitating education transformation in Malaysian schools through the Yayasan AMIR Trust Schools Programme through a Public-Private Partnership with the Ministry of Education Malaysia. Her research interest is in the field of collaborative learning and Technological Pedagogical Content Knowledge (TPACK) has driven her to design learning task for innovative teaching and learning. She is also Silver award recipient for project on Collaborative Assessment Survey: A measure of group Teamwork and Browser recipient for Redesigning Assessment and Holistic Learning (RAHoLE) Conference in 2017.

Learning is no longer confined to the physical space of the classroom. In this study, the use of mobile technologies was used among undergraduates to extend the boundary of the classroom beyond the physical space. The sample were 30 students enrolled in a Bachelor of Counselling Programme who were given a task to find out more on selected cybercrimes being under the topic challenges of using ICT. To extend the classroom, mobile technology such as Augmented Reality and QR codes were used for interactivity and students scanned posters on the wall to obtain definitions. In addition, students had to share the new knowledge they created on their wikis. A survey and semi-structured interview were employed to investigate the impact on students' learning experiences using mobile AR technology in a unique learning space for interactive learning. The study found that students were engaged with immersive learning experience afforded by the AR technology.

Keywords: augmented reality, mobile learning, learning space

Paper ID: A-04

Optimising the use of virtual learning space to improve student engagement and learning outcome in Team-Based Learning (TBL) module

Nur Lisa Zaharan¹ & Elsa Haniffah Mejia Mohamed¹

¹ Pharmacology Department, Faculty of Medicine, University of Malaya; lisa@ummc.edu.my

Dr Nur Lisa Zaharan is a medical lecturer in the Department of Pharmacology of the Faculty of Medicine. She graduated with BMed Sci and MB BCh (Hons) from the National University of Ireland, Dublin. She was conferred with PhD in Pharmacology and Therapeutics and Diploma in Statistics from University of Dublin (Trinity College). Her area of expertise is pharmacoepidemiology and clinical pharmacology. She joined University of Malaya in 2010. In the faculty, she is currently the coordinator for Stage 2 of University Malaya Medical Program, problem-based learning team and coordinator of a new elective course: Drugs from Target to Market.

Team based learning (TBL) is a cooperative learning method, with the aim of achieving a higher order of learning. Last year, a TBL session was carried for our Stage 1 University Malaya Medical Program (UMMP) students. Several issues need to be addressed in order to improve learning outcome and engagement. The participants this year were 2017/2018 cohort of medical students. We carried out two TBL sessions, at year 1 and the other at year 2. The group was based on their usual problem-based learning (PBL) group. The first TBL session (TBL1) was for the topic 'Epithelial Transport', and the second session (TBL2) was 'Insulin & Antidiabetic Agents'. In TBL1 pre-classroom session, they were instructed to complete the on-line lesson before the actual class. The online session consisted of two short videos, a short quiz with flashcard module using Quizlet and two journal articles. In TBL2, each student group was assigned a clinical case, with a set of questions to follow. They were also given 2-3 articles to help them answer the given questions. They were instructed to produce a 3-minute video to present their cases, and the videos were to be uploaded on to YouTube before the class. For both TBL1&2, they were prescribed the individual readiness assessment test (iRAT). The outcome was obtained within the same session. The same set of questions were attempted again as a group (tRAT). The results were then reviewed and discussed. The iRAT is an indication of individual accountability. iRAT score for TBL2 was much better than TBL1 (8.18/15 vs 3.2/15). The tRAT scores much better than iRAT in both TBL1&TBL2, indicating that peer learning had taken place. Our data indicates that reading assignments had poorest uptake by the students, while video had the best uptake. This coincides well with the notion that Millennials strong preference for visual contents. Interactive reading contents like the Quizlet also had much better uptake than pure reading assignment. However, reading assignment uptake was much better in TBL2 than TBL1. This is probably because the students had to read the articles when attempting the assignment. Most students also indicated that

they actively participated in TBL2 video assignment. Our findings highlight that we must attempt to design our reading assignments to be more interactive and directed in order to have more appeal to the students. Amount of time spent on the modules should also be looked into, in order to make them more appealing to the students. The motivation for medical students are deeply rooted in the topic which have been chosen, to whether or not they view the topic to be of importance or not. Optimising virtual space with online modules should be thoughtful to motivate the students to shift from being passive to active, and comprehend that the responsibility of learning lies with themselves, rather than the teacher (Kayingo & Hass, 2017).

Keywords: team based learning, flipped classroom, student engagement, cooperative learning

Day 1: 24th April 2019 (Wednesday)

Session 1 | Venue: Swan Room

Time: 11.00 am – 1.00 pm

Paper ID: B-01

The Effects of Problem-Based Language Learning on Listening Comprehension of Malaysian Undergraduate Students

Teoh, M.L.¹, Ansarian, L.¹, Ong, L.T.¹, Nair, A.B¹

¹Faculty of Languages & Linguistics, University of Malaya; teohml@um.edu.my

Dr Ruth Ong Lok Tik is a Senior Lecturer in Applied Linguistics at the Faculty of Languages & Linguistics, University of Malaya. Her professional experiences include teaching English as a second language, English for specific purposes, English for trainee teachers of English, linguistics, communication skills and intercultural communication. Her research interests include computer-mediated discourse and social media discourse. Her doctoral research used linguistic analysis to study young Malaysians' use of English in their

Listening comprehension is a crucial aspect of students' communication. However, many ESL (English as a second language) learners find it difficult to master. In an attempt to enhance the listening comprehension of a group of ESL learners in a local institution of higher studies in Malaysia, a mixed-method study was carried out where a PBL (problem-based learning) approach on the listening component of a course was implemented. The PBL program was conducted with the experimental group (n=19) and the conventional listening course was run as usual with another class of 18 students. All 37 participants were first year undergraduates majoring in English Linguistics. Results of this study revealed that not only did PBL have a significant effect on the students' listening comprehension, almost all the students in the

experimental group were satisfied with this learner-centered approach, felt motivated to learn, acquired accidental vocabulary and enjoyed group work. The findings of this study could offer some pedagogical implications for language teachers, material developers and curriculum designers.

Keywords: Problem-based language learning, listening comprehension, English as the second language (ESL), learner-centered instruction, collaborative learning

Paper ID: B-02

Knowledge Transfer Strategy based on Beyond Centre and Circle Time (BCCT) Method: A Case Study of First Year Primary School Students in SDIT Permata Madani in Bogor, Indonesia

Rina Wahyuni¹ & Tamara Adriani Salim¹

¹ *Department of Library and Information Science, Faculty of Humanity, University of Indonesia; rina.w.librarian@gmail.com*

Rina Wahyuni is a librarian in Education and Training Centre, National Library of Indonesia. She received her bachelor degree in English language Teaching in 2007 and a master's degree in applied linguistics from State University of Jakarta 2011. Currently, she continues her study in Library and Information Science in University of Indonesia for master level. She is interested in children reading interest, information literacy, Education of Library and Information Science, Knowledge Preservation and Knowledge Management. Moreover, her previous teaching experiences in teaching children and adults support her interest. She has written several articles collaboratively for some conferences and she can be reached at rina.w.librarian@gmail.com.

This study aims at describing and explaining on strategies used by teacher to transfer knowledge to the students in the learning process based on BCCT method in Permata Madani Primary School. This study is conducted using qualitative method. Cresswell (2014) stated that in qualitative research, the data collection can be conducted using three kinds of techniques, interview, observation and documentation. To get the data about the process of transferring knowledge between teacher and students, observations are required. Through observation, the process of transferring knowledge could be clearly captured and later described. To get rich data, interviews with some teachers regarding the strategies and challenges occurred in transferring knowledge during the process of learning, need to be conducted. Moreover, some supporting documents such as students' journals or samples of students' works are helpful to support the analysis of findings. However, there are some limitations to conduct observation and interview with the teachers as it might disturb the process of learning and availability of time of the teachers. To overcome this, a good communication approach with teachers and school's principal is started and maintained since the very beginning as it leads

to good coordination with teachers and school during the study. The study shows that the strategies that teachers used to transfer knowledge are; using real or materials to explain the theme of the lesson to build understanding; explaining theory with interactive discussion in circle that leads to open and fun discussion with students; facilitating students working on their personal or group projects intensively to build and check their understanding; using indirect language to encourage students actively involved in their learning process and avoid instructing, forbidding and angeriness to support happy learning experiences. The findings of this study may lead to another research in similar field or topic and also to other fields of study that specifically relate to certain method used in knowledge transfer in learning process. Besides, several previous studies on BCCT learning methods have been conducted mostly on the learning model and its implementation in general but specifically seldom to relate it with other topic in other fields that still relates, such as knowledge transfer.

Keywords: BCCT method, knowledge transfer, students-centred learning

Paper ID: B-03

Real-Life Moral Dilemma Discussion (Re-LiMDD) to Bridge Students of Higher Learning to be Reflective Practicing Educators

Vishalache Balakrishnan¹ & Yong Zulina Zubairi²

¹ Faculty of Education, University Malaya; visha@um.edu.my

² Pusat Asasi Sains, University Malaya

Vishalache Balakrishnan, PhD is a senior lecturer at the Faculty of Education, University of Malaya. During her doctoral studies at Victoria University of Wellington, New Zealand, she tutored students from many different backgrounds. For 31 years, she has been involved in local and international collaborative research on adolescence, citizenship, multiculturalism and moral education. Her post-doctoral studies focused on critical educational psychology around the world. Vishalache is currently the Director for Centre for Research in International and Comparative Education (CRICE). She is also a Research Associate at the Wilf Malcolm Institute of Education (WMIER), Faculty of Education, The University of Waikato, New Zealand.

Current educators in Malaysia have much to comment of the education transformation era and keep complaining about the speed in which changes in policies are taking place based on the Malaysia Education Blueprint for schools and universities. They are unable to enjoy their vocation, what more reflect on their practices and become educators that are more effective. The training for such a practice starts in the university where they gain their TPACK (technology, pedagogy, content and knowledge). The using of reflective practice and Re-LiMDD after each lecture, field work or workshop, encourage students to write their reflection based on what they have undergone during the activity. This presentation will share the initial

data of how students in three different courses use Re-LiMDD in different learning spaces (physical and virtual) complete their task by resolving real-life dilemmas that they faced and how the students become reflective practitioners when they are faced with real-life moral dilemmas. Their own reflective memos are analysed to identify the opportunities of using an alternative tool to enhance the skills of becoming reflective practising educators and become the transformers of our current education system.

Keywords: Re-LiMDD, moral dilemmas, strategies reflecting educators, physical, virtual space

Paper ID: B-04

Peer review of classroom teaching (PRT): A meaningful practice for the advancement of the instructors.

Siti Zaidah Zainuddin¹, David Yoong Soon Chye¹, Murad Abdu Saeed Mohammed¹

¹Faculty Languages and Linguistics, University of Malaya; zaidah75@um.edu.my

Siti Zaidah Zainuddin is a Senior Lecturer in the Department of English Language, Faculty of Languages and Linguistics, University of Malaya. Her primary research interests lie in discourse studies particularly genre analysis in both written and spoken academic discourse as well as corpus linguistics. Currently, she is working on sentiment analysis research, a field at the intersection of linguistics and computer science, which attempts to automatically determine the sentiment, or positive/negative opinion, contained in text. In the field of language learning and teaching, she has been working on feedback and teacher-learner interaction. Her publications address academic discourse analysis and writing by second language speakers.

Peer review of teaching (PRT) is a process where instructors/lecturers collaborate, observe and review their teaching practices based on constructive feedback provided by a critical peer or friend. In PRT, instructors watch or observe each other's teaching practices and provide critical and constructive feedback on such practices. Despite the recognition of the necessity to improve their teaching through peer evaluation, TOA7001 lecturers have not conducted PRT for many years. Interestingly, this is not an isolated phenomenon. Scholars have found that lecturers resist PRT practices, owing to their insufficient time to spend on reviewing teaching practices, their perception of it as a technical way to check that a lecturer is teaching and a time consuming process and also as a threat to their autonomy in teaching. The aim of this study is to apply PRT as a pedagogical enhancement approach in the teaching of TOA7001. To achieve our aims, two lecturers from TOA7001, Semester 1 2018/2019 agreed to be part of the research. Both lecturers granted access to each other's classroom and observed each other's teaching practices by video recording of their classroom lessons that were carried out in two sessions. The elements of teaching evaluation so far include positive feedback, in-class teaching practices and in-pur on the course content.

Keywords: peer review, teaching, lecturers

Day 1: 24th April 2019 (Wednesday)

Session 2 | Venue: Phoenix Ballroom

Time: 3.00 pm – 5.00 pm

Paper ID: A-05

Bridging the Gap: Trained to Teach Effectively in a Collaborative Learning Space

Zahiruddin Fitri Abu Hassan¹, Nur Azah Hamzaid^{1,2}, Mahmoud Danaee³

¹*Academic Enhancement and Leadership Development Centre, University of Malaya; zahiruddin@um.edu.my*

²*Faculty of Engineering, University of Malaya*

³*Faculty of Medicine, University of Malaya*

Dr Zahiruddin Fitri Abu Hassan is a senior lecturer in Building Surveying at the University of Malaya, Kuala Lumpur. His expertise and research is in building pathology, concrete durability and construction technology. An avid e-Learning advocate, he loves tinkering with computers and exploring new softwares and web 2.0 tools for education... His passion led the university to appoint him as the Head of e-Learning at the Academic Enhancement & Leadership Development Centre (ADeC). He rows occasionally, plays volleyball and has taken in to cycling.

The use of specially designed collaborative learning space in use in UM was examined after several years of development and some specific training by the academic development centre on the potential learning gains from using collaborative learning spaces that is widely reported elsewhere. The work focuses on the practice of UM lecturers working in these spaces via a questionnaire survey amongst academics divided into 3 different groups. These academics are either trained in the use of collaborative learning space, have undergone training inside a collaborative learning space, or none of the aforementioned. The questionnaire design research asks the academics on their perception about collaborative learning spaces and practices of collaborative learning spaces the academics have adopted. A round of expert validation confirmed the validity of the questionnaire before being administered to the target respondents. The response rate for the questionnaire is 25%. Data shows that the respondents valued the training on the use of the spaces and that they can see the benefits of collaborative learning spaces for student learning but there are concerns over the support given for the effective use of them. The academics also responds positively to the traits of collaborative learning spaces that is provided in UM with results from similar studies elsewhere. The positive effect from this work should influence the university management to put further resources into developing these collaborative learning spaces to enhance student learning.

Keywords: Collaborative, learning space, lecturers

Paper ID: A-06

The incorporation of context-relevant learning spaces into the teaching and learning of pharmacy practices: Students' perception and learning effectiveness

Jing Yi Seah¹, Chia Wei Phan¹, Zoriah Aziz¹, Yuen Fei Wong¹

¹Department of Pharmacy, Faculty of Medicine, University of Malaya; yfwong@um.edu.my

Dr. Wong graduated with a BPharm degree from University Sains Malaysia, after which she worked in Selayang Hospital as a registered pharmacist. After her PhD training at King's College London, Dr. Wong moved to The Chinese University of Hong Kong for her postdoctoral training. During her stay in Hong Kong, Dr. Wong passed the Hong Kong Pharmacy and Poisons Board Examination and has since been a registered pharmacist of Hong Kong. Dr. Wong is currently a Pharmacy Lecturer at University Malaya.

Medication dispensing is a core skill for pharmacists practising in the hospital and in the community (retail) pharmacies. This study aimed to explore the perception and learning effectiveness in which student learning takes place in two context-relevant learning spaces, namely virtual pharmacy (MyDispense) and role-play sessions. All 68 final year pharmacy students of University of Malaya who registered for the MIB4004 module (Hospital and Community Pharmacy Practices) were recruited. Data were collected in two phases. Pre-exposure survey assessed student exposure to electronic devices while post-exposure survey assessed student perception towards the two learning spaces. A paired t-test was used to test the statistical significance between the learning outcomes of these two learning spaces. All students owned a laptop or desktop prior to enrolling to the Pharmacy course and a mobile smart phone at the time the study started. There was no statistically significant difference between the assessment results of the virtual pharmacy (MyDispense) and the role-play sessions. However, 93.8% of the students agreed that working with MyDispense was fun; 90.7% agreed that it enhanced the understanding of steps required in dispensing medications; 77% agreed that practising with MyDispense would better prepare them for real-world working life. When asked to compare the learning experience between MyDispense and role-play sessions, 90.7% of the students agreed that they were more nervous during the role-play sessions but 70.8% agreed that role-play session was a better training compared to MyDispense. Finally, 92.3% of the students agreed that a combination of both MyDispense and role-play sessions would be best for the learning of this module. In conclusion, the majority of final year Pharmacy students in University of Malaya prefer learning with actual human interaction, which is deemed essential for the learning of this module.

Keywords: MyDispense, role-play, survey

Paper ID: A-07

Differences in Impact of Virtual and Various Physical Learning Spaces on Pupils from Urban and Rural Schools

Grace Gayathri A/P Ramakarsinin¹

¹Sekolah Kebangsaan Temiang, Negeri Sembilan; graceleah68@gmail.com

Ms. Grace Gayathri A/P Ramakarsinin is an English Language teacher in Sekolah Kebangsaan Temiang, Seremban, Negeri Sembilan. She has been teaching for 7 years. She has a degree in Education majoring in Design and Technology. She has earned a Master Degree also in Education majoring in Education Management and Policies. She is currently working on her doctorate degree in Instructional Technology of Education. Her interest are in English Language teaching and practices, instructional technology and education policies. She is currently working on developing teachers' training module for refugee teachers through Massive Open Online Courses (MOOC).

As the education transformation was again discussed and dialogued nationwide, the Malaysian Ministry of Education took a leap forward in introducing 21st Century Learning which was a systemic move from traditional the education system to a modern more dynamic education system which caters to the change from industrial-age education to post-industrial education. The ministry has introduced the 21st Learning Classroom and The Frog Classroom which provided various learning spaces in national schools. This study was conducted in two schools, one being an urban school and the other a rural school, to study the differences in the impact of using virtual and physical space. The data is collected through questionnaires and interviews by the researcher. The results for both, urban and rural school, indicate that by creating these 21st-century classrooms with various types of active physical learning space, pupils are more engaged with others and their tasks. They are also more creative this learning space caters to different learning styles, thus leading to a slight increase in academic achievement in both schools. As such, there are no significant differences when it comes to physical learning platforms for both of these schools. The results from the data collected, however, show a significant difference when it comes to the virtual learning environment. The results indicate that most urban school pupils have actively used the Frog Classroom and have a collaborative network among themselves and their teachers. On the other hand, rural school pupils are reluctant to use the Frog Classroom and usually don't have many interactions with other pupils in the virtual environment. The small number of pupils who use Frog Classroom are often passive and use it only to complete their tasks.

Keywords: learning space, virtual, urban school, rural school

Paper ID: A-08

Learning Space Preferences of Final Year Undergraduate Students in the Faculty of Dentistry, University of Malaya

Dr. Lau May Nak¹, Dr. Saritha A/P Sivarajan¹, Associate Prof. Dr. Zamros Yuzadi Mohd Yusof²

¹ *Department of Paediatric Dentistry & Orthodontics, Faculty of Dentistry, University of Malaya; minalau@um.edu.my*

² *Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya*

Dr. Lau May Nak qualified as Bachelor of Dental Surgery from University of Malaya, Malaysia in 2008. She received Master of Orthodontics (With Distinction) from University of Malaya, Malaysia and obtained her Membership in Orthodontics from Royal College of Surgeon, England in 2017. She served in the Ministry of Health, Malaysia since 2008 and became a lecturer in the Faculty of Dentistry, University of Malaya since 2018. She is actively involved in teaching of undergraduates and postgraduates, treating orthodontic patients, and doing clinical and educational research. Her areas of interest are orthodontics, obstructive sleep apnoea, and teaching and learning.

Optimal learning space enhances teaching and learning experience, and may differ from one discipline to another. This research aimed to explore the opinions on learning space for teaching and learning orthodontic course among final year dental students at the Faculty of Dentistry, University of Malaya. We used a mixed-method study design with exploratory sequential design strategy including qualitative followed by quantitative data collection. The first phase included Focus Group Discussions (FGDs) on two groups of recent graduates (8 participants per group) based on their final year orthodontic examination results (high and low grades). They were asked about their opinions on the learning space provided for orthodontic lecture, tutorial, clinic, self-study, and networking. Discussions during the FGDs were recorded using a video-recording tape. Data were transcribed and analysed using NVivo software version 12 for Mac to generate relevant themes. The second phase involves questionnaire development which will be used to obtain quantitative feedback from the current final year dental students. This paper only includes graduates' opinions of the current learning space from the FGDs. For orthodontic lectures, graduates preferred a conventional lecture hall layout with an individual power outlet and a desk large enough for a laptop. For orthodontic tutorials, graduates with high grades preferred e-tutorials on Spectrum while graduates with low grades preferred conventional tutorials. For clinical teaching, graduates perceived the clinic was very well equipped except the Dental Information System (DEISY) which encountered frequent disruption. Graduates perceived the laboratory was poorly ventilated and lack of facilities with limited operating hours. A 24-hour access using an access card is suggested. Graduates preferred live streaming sessions instead of on-site teachings for combined clinics. Graduates perceived they did not have time for self-study during working

hours. Some suggested for the library and the student centre to operate after clinics for self-study. There is lack of time and facilities for networking during office hours. In conclusion, the findings of the FGDs reveal that learning space preferences of final year dental students for lecture, tutorial, clinic, self-study, and networking are specific to their learning activities and different from the current concept of learning space. Future planning of learning space should take into account the students' preferences in order to fulfil their learning goals and enhance teaching and learning experience.

Keywords: Dental education, Focus group discussion, Learning space, Orthodontics, Teaching and learning

Day 1: 24th April 2019 (Wednesday)

Session 2 | Venue: Swan Room

Time: 3.00 pm – 5.00 pm

Paper ID: B-05

**“There is no failure, only valuable lesson opportunities”:
Reframing Students Negative Conceptions of ‘Failure’ and
‘Mistakes’ in a Safe Learning Space**

David Yoong¹ & Narges Saffari¹

¹*Faculty of Languages and Linguistics, University of Malaya; davidyoong@um.edu.my*

David Yoong is a discourse analyst who specialises in the linguistic study of reality constructs especially of powerful institutions and people. Among others, he has examined the discourses of police interviews, law, parliament, and policy practices. He can be reached at davidyoong@um.edu.my.

A survey that was conducted in Week 1 of Semester 1 2018/2019 for TOX7001 (Research Methodology) and TOX7007 (Discourse Analysis) show that 80% of students in these courses thought the classes will be hard or extremely hard, and they feared failing these classes. Not only can the fear of failure in academic studies compound other the challenges that students are already facing in their lives, and create a toll on their mental health (Ribeiro et al., 2018; Robotham, 2006), but it is well documented in the literature that fear can have a significant detrimental effect on student learning (e.g. Rogerson & Scott, 2010; Sprinkle et al., 2005; Entwistle, 1988; Martin & Marsh, 2006). This research aims to reframe students' conception of fear of failure and mistakes, as valuable lesson opportunities by means of experiential activities in a safe learning space, and it aims to see if students would have become less fearful of making mistakes and fearing failures by the end of Week 14. The participants of this class are 35 students from TOX7001 and TOX7007. The collected data include students' fear of failure index scores, pre (Week 1) and post (Week 15) course feedback of their fear of failure, and some video recordings of the classes. The way the classes were carried out include sharing

of personal anecdotes of failure, giving students challenging class work (e.g. analysing data with what had been immediately taught), reminding students of catch-phrases like, “failure is when you fail to participate” and “making mistakes is how you learn fast”, giving honest and critical, but compassionate feedback of their performance, and assuring that critical remarks are not hurtful attacks on their character, but opportunities for improvement. For the majority of students, the methods seem to have a positive effect in mitigating fears of failure, however, the research also shows some caveats and variables that can inhibit the facilitation and the effectiveness of the pedagogical methods. It is hoped this research will provide suggested ways to improve and innovate practices, in order to make the learning space safer for all students in reframing their conceptions of ‘failure’ and ‘mistakes’.

Keywords: fear of failure, reframing beliefs, safe learning space, experiential learning

Paper ID: B-06

Jigsaw Classroom: Its Effectiveness towards Biological and Physical Science Students in Learning Stereochemistry

Mazdida Sulaiman¹, Fauzani Mohd Salleh¹, Che Mohd Farhan Che Mat Dusuki¹, Mahfuzah Yusoff¹

¹Chemistry Division, Centre for Foundation Studies in Science, University of Malaya; mazdidas@um.edu.my

Mazdida Sulaiman is currently a Senior Lecturer in Chemistry at the Centre for Foundation Studies in Science, University of Malaya. She received her BSc in Chemistry from the University of Malaya in 1995 and her PhD at the same university. She has started as a tutor whilst doing her Masters degree and has accumulated about 20 years of teaching experience. She has been involved in research in the field of Natural Product Chemistry and Advanced Material and actively involved in writing scientific articles.

In stereochemistry, students concentrate on the study of classification of chemical molecules called stereoisomers. These molecules have the same molecular formula but differ only in the three-dimensional orientation of their atoms/groups of atoms resulting in different physical, chemical or biological properties. Stereochemistry is regarded as a difficult topic and students occasionally fail to understand the basic concepts taught in the lecture. This impedes themselves to further study the content of the topic. One of the reasons why stereochemistry is viewed as hard is due to the ineffective teaching and learning approaches. To overcome these problems, we proposed a Jigsaw cooperative learning strategy where we hypothesized that if the students master the topics well enough, they can teach others. Thus, improve their understanding in stereochemistry topic. The purpose of this research was to determine the effects of jigsaw cooperative learning strategy on the student’s level of understanding in stereochemistry using the jigsaw method. This study was carried out in two different classes of both biological and physical science programmes during the 2018/2019 academic year. One of the classes was given as the non-jigsaw group (control) and other as the jigsaw group. Students in the jigsaw group were divided into home groups consist of four members. Each member was then assigned to a subtopic. Altogether there were four subtopics and at the

same time representing four expert groups. The four subtopics are chirality of molecules/objects, chiral carbon, stereoisomers (enantiomerism /diastereomerism /meso) and optical activity. We found positive effects on the jigsaw method towards both biological and physical science programmes students including understanding the topics, learning achievement and motivation. This method can be used in teaching stereochemistry not only in the foundation of science programmes but also in undergraduates teaching. Our study is the first report on the use of the jigsaw method for the teaching of stereochemistry in foundation studies of science programmes in Malaysia.

Keywords: Stereochemistry, Jigsaw method, cooperative learning, student centered

Paper ID: B-07

Development and Validation of an Authentic-Based Competency Assessment Rubric

Nithia K¹, Farrah Dina Yusop¹

¹ *University of Malaya; nithia.k@siswa.um.edu.my*

Nithiananthini A/P Kumarawel is currently a Phd student in University of Malaya Since 2017. She also took her Master's Degree in the same university back in 2016. She is now an educator in ministry of education who taught secondary school, a vocational competency assessor for multimedia production subject academic assessor (PT3), a state's co-curriculum coach (WPKL), robotic and innovation mentor and trainer as well as FROG VLE trainer & administrator

This paper explains the development and validation of an authentic-based competency assessment rubric for a secondary school's vocational subject – Multimedia Production (MP). The rubric was developed as to address the current gap of the current competency assessment method that focuses on students' skills and knowledge, and consequently overlook the importance of authentic-based assessment. Therefore, this rubric was designed to measure students' performance and outcome in an authentic-project-based learning environment. The purpose of this research is to develop and verify an authentic-based assessment based on criterion-referenced type of assessment. Rubric assessment method is seen as an emerging alternative assessment method by today's researcher. The current assessment method assesses student's knowledge and skills in a certain competency, but the developed rubric is holistically assessing students competency based on four domains. The rubric also addresses project-based learning principles whereby the latter does not. The rubric has also incorporated 21st century learning principles and needs especially in working in a group, gathering resources and information and collaborating their ideas and views based on authentic or real-world problems given to them. The developed rubrics consist of grades and scores that measure student's competency in four main domains: Teamwork, Skills, Knowledge and Presentation. The rubric was developed based on review of relevant literature and validated by a group of six subject matter experts using Lawshe's (1975) method. The

method of validation uses Content Validity Ratio (CVR) value and Content Validity Index (CVI). The calculations was done using MS Excel spreadsheet based on Lawshe's (1975) formula. CVR values were gained from the experts ratings on items as "Essential" were calculated and some of the items was deleted which has value below than 0.6. However, the final validation of the rubric is determined by CVI value which is the mean of the overall CVR scores. The CVI value for the whole set of items is **0.9** after items with value below than 0.6 were deleted.

Keywords: authentic, competency assessment, vocational subject, secondary school, rubric

Paper ID: B-08

Learning Space: Embedded the Teaching Technique of Prosthetics and Orthotics Engineering

Nasrul Anuar Abd Razak¹ & Nur Saibah Ghani¹

¹*Department of Biomedical Engineering, Faculty of Engineering, University of Malaya; nasrul.anuar@um.edu.my*

Dr. Nasrul got his PhD and Master's Degree from Faculty of Engineering, University of Malaya. During his bachelor degree, he pursued in Bachelor of Engineering (Mechatronics) and graduated from Universiti Islam Antarabangsa (UIAM). He speacialized in Prosthetics & Orthotics Engineering and Rehabilitation Engineering. He can be contacted at 03- 7967 5341 / 019 936 7233, nasrul.anuar@um.edu.my

Prosthetic and orthotic engineering is one of the latest fields in Malaysia. It requires special focus on theoretical aspects (the body's anatomy, biomechanics, clinical) and in-depth practice (patient analysis, direct movement analysis). Apart from theoretical basis, students need to look deeper into the practical techniques that need to be understood especially in the ability to interact and analyze the patient (OKU). Today's students have a clear example of how they can better understand something. Examples provided directly within the direct teaching make it easier for students to have a better understanding (Ahmad, 2016). The isolation of theoretical and practical teaching techniques in some of the subjects may be one of the factors; the students are difficult to solve a problem. This is because most of the examples given through theory are mostly based on the picture of the book and the publication journal. It is very far from a direct example, especially when conducting prosthetic and orthotic engineering teaching which requires special study on the disabled especially for Malaysians. As the study by Lim (2002) states that local universities and Malaysian polytechnics have provided automated laboratories equipped with the PLe to provide sufficient practical training to their students so that the students produced meet the needs of the industry. With that, the problems encountered during PLe learning in the automation laboratories need to be identified and fully addressed. This is to ensure students can master theoretical knowledge as well as practical skills. This is especially important when the practical learning of PLe programming is a different way of learning from the traditional way, it involves

expensive and limited equipment, security issues that need to be addressed and the need for continuous and continuing training and skills. (Ramli et al., 2012, Suci, 2008). Through a combination of theoretical, practical and clinical methods; it is hoped to be a new learning technique as well as a platform that can help students better understand, accurately and in detail than to waste time thinking of practical theoretical analysis by themselves. This can cause confusion amongst students because they cannot get a clear picture of theoretical and practical and clinical teaching (Supiah et al., 2012).

Keywords: Embedded teaching, practical & theoretical, direct learning

Day 2: 25th April 2019 (Thursday)

Session 3 | Venue: Phoenix Ballroom

Time: 9.30 am – 10.30 am

Paper ID: A-09

To What Extent Facilitation using ‘WhatsApp’ Impacted Student’s Inquiry Skill

Aishah Abu Bakar¹

¹*Department of Civil Engineering, Faculty of Engineering, University of Malaya;
aishah_ab@um.edu.my*

Dr Aishah Abu Bakar is a senior lecturer at the Department of Civil Engineering. She was the recipient of the National Teaching Award for the Engineering Cluster in the first National Academic Award 2006 by the Ministry of Higher Education and the Chancellor Award for Excellence in Teaching in 2007 by the University of Malaya. She was an expert panel and contributor to the publication of national Guidelines to Good Practices : Curriculum Design and Delivery (CDD) by the Malaysian Qualification Agency (MQA). She was previously the head of Teaching and Learning Unit and later became the director of the Academic Development Centre (ADeC) University of Malaya.

Problem-based learning (PBL) and industrial placement (IP) are high impact practices (HIPs) commonly embedded in a curriculum. Its positive impact mainly due to student’s high level of participation in the learning process. High impact learning may not necessarily occur just because HIPs is being employed. Instead, facilitating learning through frequent, timely and constructive feedback is the key to the learning process. The facilitation must encourage students to reflect on and see the connection between their studies and experiences in dealing with real situation. Reflective questions are used to promote student’s inquiry skills in both PBL and IP in this study. Students were nurtured on how to develop their own reflective questions in the process of inquiry. In the PBL, effective facilitation to helps student’s inquiry skill development can easily be achieved using the FILA and face-to-face learning discussion. However, when this physical space is no longer available during the IP, blended leaning approach is no longer an option. Although students are supervised by their

industrial supervisor, facilitating students to link knowledge learned from what they have studied in campus to real experiences remains the role of an academic supervisor. E-mail has been the used as the medium of communication between IP students and academic supervisors and hence the learning space practiced. The email is often regarded as official communication platform and its use for frequent, timely and constructive feedback is rather limited. Instead of using university official e-mail system, in this study the use of WhatsApp is being explored for the same purpose. WhatsApp is being considered in this study because it is less official in comparison to official university mail apart from it being commonly used by individuals. A group of five IP students undergone the process of using WhatsApp as their learning space for inquiry skill development purposes. During the process they were encouraged to share their real work experience in the WhatsApp group while the facilitator modelled the reflective questions to help students link theory to real experience. The impact of using WhatsApp to facilitate inquiry skill development is investigated through qualitative data from students log book, interview and industrial visit discussion. WhatsApp learning space was comfortably used by IP students only for task related matter such as setting visitation date as submissions of official forms. Students hesitated to use the space for academic discourse to collaboratively promote further inquiry. The underlying reason for this observation may need to be understood before WhatsApp can be successfully used to facilitate inquiry skill development.

Keywords: Inquiry skills, 'WhatsApp', facilitation.

Paper ID: A-10

A Model for Collaborative Learning Space: Teaching Early Childhood Preservice Teachers How to Teach STEM

Suzieleez Syrene Abdul Rahim¹ & Renuka V. Sathasivam¹

¹ *Department of Mathematics and Science Education, Faculty of Education, University of Malaya; suzieleez@um.edu.my*

Dr Suzieleez Syrene Abdul Rahim is a senior lecturer at the Faculty of Education, University of Malaya. She holds a Bachelor of Science with Education (BScEd) and Master in Education (MEd), both from the University of Malaya. She received her PhD in mathematics education from the University of Western Australia. She has 25 years of experience as a mathematics educator. Her previous teaching experiences include teaching secondary school mathematics and A-Level mathematics. She teaches early childhood mathematics, curriculum development and assessment in mathematics education. Her research interests are mathematics teaching and learning, assessment, teachers' beliefs and teacher professional development.

Collaborative learning in higher education does not take place spontaneously as students are found to prefer individual forms of learning. Thus, lecturers need to deliberately design these collaborative learning environment spaces. These learning spaces can promote deep learning

and allow students to engage in sharing their knowledge and expertise. However, creating these collaborative learning spaces/ environments and developing relevant activities is a challenging task. This paper shares the experiences of carrying out a study that focused on how to develop a model of collaborative learning space that would gradually involve students in collaborative learning environments. The participants of this study were early childhood preservice teachers from two courses (PIC 2003 – Mathematics for Early Childhood and PIC 2004- Science for Young Children) taught by the two authors. There were two levels of collaboration in this study. Firstly, both lecturers collaborated and discussed how they would integrate the learning outcomes and the activities of both the courses. Each lecturer highlighted the important learning outcomes of their individual course. Then together the lecturers decided which aspect they wanted their students to collaborate on. STEM was chosen as the topic for collaboration as both lecturers taught science and mathematics respectively. Secondly, the students were introduced into the process of collaborative learning where they were asked to prepare a 3D prototype. The 3D prototype was their visualization of how they would create learning spaces to teach STEM for young children. Students were required to interview various stakeholders to acquire knowledge about issues and challenges in the implementation of STEM. Then they developed a 2D drawing of their STEM learning space for preschoolers and justified their spaces. After which they prepared a 3D model of their learning spaces. They were then asked to explain their learning spaces to an expert in STEM education. Later, students were required to evaluate their peers' contribution to the project.

Keywords: collaborative learning, learning spaces, preschool teachers, STEM education

Day 2: 25th April 2019 (Thursday)

Session 3 | Venue: Swan Room

Time: 9.30 am – 10.30 am

Paper ID: B-09

Mathematical Thinking Skills and Creative Problem Solving in the Delivery of Engineering Mathematics in the Conventional Learning space

Khairunnisa Hasikin¹ & Wong Wei Ru¹

¹Department of Biomedical Engineering, Faculty of Engineering, University of Malaya;
khairunnisa@um.edu.my

Khairunnisa Hasikin received her B.Eng degree in Electrical Engineering, M.Sc. degree in Biomedical Engineering from University of Malaya, and Ph.D. from Universiti Sains Malaysia. She is currently a Senior Lecturer with the Department of Biomedical Engineering, Faculty of Engineering, University of Malaya. Her research interests include medical image processing and analysis, expert systems, and

medical informatics. She is one of the recipient of UM-LiTer Grant. She is currently involved in STEM research program and recently being awarded with STEM Education Research by Motorola Solutions.

Engineering Mathematics has been a pre-requisite and requirement as most topics in engineering courses widely employ this fundamental. This paper describes the effect of introducing mathematical thinking skills and creating problem solving in the delivering of Engineering Mathematics in conventional learning space. The mathematical thinking skills are the skills that are used in the way which an individual prefers to present, to understand and to think through, mathematical facts and connection by certain internal imaginations or external representations. All this while, Engineering Mathematics has been taught in conventional face-to-face approach where the lecturers fully utilize the whiteboard and presentation slides in teaching and learning. In this study, we have exposed the student to those skills and the effect has been compared with the conventional face to face approach. Findings indicate that the students respond well on the new approach and appreciate the nurturing process of mathematical thinking skills. The findings above are helpful for suggesting a decent learning environment and activities to cover the mathematical needs of engineering students via active learning, class activities and group work are much needed in learning activities. Apart from this, it suggests that the lecturers should use the effective method of teaching such as; using student-centered activities with the aim of improving the level of understanding and decreasing the difficulties of learning in the students.

Keywords: mathematics curriculum, engineering mathematics, mathematical skills, assessment

Paper ID: B-10

Beyond Classroom in Learning Language in Literary Texts

Emily Lau Kui-Ling¹, Azlin Zainal¹, Yap Teng Teng²

¹*Department of English Language, Faculty of Languages and Linguistics, University of Malaya;*

²*Department of Malaysian Languages and Applied Linguistics, Faculty of Languages and Linguistics, University of Malaya;elkl@um.edu.my*

Emily Lau Kui-Ling's career as a lecturer began in 2005 with the completion of her MA in English Literature. Lau started serving UM upon graduating in PhD (2013) and she was initiated into teaching Language in Literature course in the following year, 2014. Four years on into this course, Lau's begins fan the flame of her interest into experimenting different pedagogical approaches to enhance her teaching and undergraduates' learning experience.

Creative learning mode and space act as a platform for engaging students' interest and making learning experience more fun. This action research aims to determine the impact of teaching and learning Language in Literary Texts by improvising the classroom-based learning environment with a more organic approach. An activity, "meet-the-author" was

designed for this batch of undergraduates. Data was collected through survey questionnaires to account for their experience for the first exposure. Following this, an assessment aligned with the “meet-the-author” event was conducted. The assessment results show a 100% pass. This exemplifies a positive and encouraging correlation between beyond classroom mode and learners’ performance. Although there is no drastic positive spike in the overall results, findings do answered the principal goal of the research where it is discovered that the “meet-the-author” activity has helped the students. Through the possibilities of moving beyond classroom-based teaching and learning space, it is a means for lecturers to address limitations within classroom teaching and learning as well as pique students’ motivation and positive interaction.

Keywords: action research, beyond classroom, learning, literary texts

Day 2: 25th April 2019 (Thursday)

Session 4 | Venue: Phoenix Ballroom

Time: 11.00 am – 1.00 pm

Paper ID: A-11

Transformation from Traditional Tutorial Classroom to New Learning Spaces: Implications on Application of 5E Instructional Model to PASUM Students.

Fauzani Binti Md. Salleh¹, Che Mohd Farhan Bin Che Mat Dusuki¹, Mahfuzah Binti Yusoff¹, Mazdida Binti Sulaiman¹

¹Chemistry Division, Centre for Foundation Studies in Science, University of Malaya; alya5288@um.edu.my

Dr Fauzani Md. Salleh is currently attached to Chemistry Division, Centre for Foundation Studies in Science University of Malaya as a Senior Lecturer teaching Chemistry subjects. She has completed her degree in Bachelor Science (Hons) in Chemical Technology from Universiti Kebangsaan Malaysia in 2003. Then she continued her tertiary education at the same university and awarded the degree of Master of Science on 2007. On 2009 she has received a scholarship under the Skim Latihan IPTA (SLAI) program a scheme established by the Ministry of Education (MOE) to further study as a candidate for the Doctor of Philosophy (Ph.D) programme at University of Malaya.

Learning takes place everywhere. Monahan (2002) said that a space is design shape the learning that happens in that space. Transformation of learning spaces based on the design principal have subsequent effects in influencing teacher pedagogies and student learning (Oblinger, 2006; Flutter 2006). Process of learning cycle consist of 5E (Bybee, 1989). What is 5E? 5E is instructional model that consists of 5 elements, i.e. engage, explore, explain,

elaborate and evaluate. The purpose of this research is to investigate the impact of transformation of traditional tutorial classroom and its implications on application of 5E instructional model to the course learning outcomes of PASUM students. Other than that, is to compare the course learning outcome of PASUM students before and after transformation of learning spaces and between conventional teaching learning method and 5E instructional model. Framework for this research are based on learning spaces design, 5e instructional model and course learning outcomes to map the relations between lecturer, learners, learning process and spaces. Observational data are collected from chemistry course offer in PASUM for semester I 2018/2019. The chemistry course is Chemistry 1 (FAD 1005). The observational data are divided into two group of specimens 1-&2 and teach by same tutor. In term of control both specimens 1 & 2 are tested, the tutor used the same course materials, tutorial assignments and exam questions for both specimens 1&2. A learning spaces of 4 round tables and 5-6 students gather in one group. There are Armchair swivel surrounds the round table. Each table have their own tempered safety screen glass/white board on each side. This learning space equip with projector, LCD, and visualizer. This project design & development of learning spaces conveys the importance of teamwork and interaction in teaching and learning process (Specimens 1). Another classroom will remain unchanged as traditional tutorial classroom. In a traditional classroom that has a whiteboard and projection screen at the front of the room, and rows of seats and tables facing forward (Specimens 2). Formative and summative assessment were used for both specimens. Formative assessment is based on continuous assessment while summative assessment from the results of final exam semester I. The constrain in this research is time constrain. The tutorial class in only 50 minutes a week in student learning time (SLT). Learning space might influence innovative teaching practices and enhanced student learning outcomes. In this research, the relationship between the transformation of learning spaces and its impact to the 5E Instructional model in course learning outcomes of PASUM students is investigated. The findings from this research, hopefully can benefit to all PASUM students and increase self- satisfaction being part of PASUM. It is one of the platform for us academicians to share and create awareness to improve teaching and learning practice.

Keywords: Learning space, innovative teaching practices, student learning outcomes, 5E Instructional model

Paper ID: A-12

Classroom as the Active Learning Space: Scientific Skills

Learning Kit for Primary School Students

Nadrah Harith Fadzilah¹, Chin Kit Ping¹, Syahirah Hamdan¹, Farrah Dina Yusop¹

¹ Faculty of Education, University of Malaya; nadrahhf@gmail.com

Nadrah Harith Fadzilah has served as a secondary school educator for more than ten years, specialising in Biology and Science. She is currently pursuing Master of Instructional Technology (Instructional

Design) in the University of Malaya with a special interest in active learning using technology among adult and teenage learners. She recently received Bronze Medal for Science Learning Kit designed for primary school students at a national level innovation competition.

This study reports on an exploratory study on the impact of a science board game embedded with Augmented Reality (AR), on primary school students' interest in and motivation to learning science, and in strengthening their communication and collaborative skills. Results indicated that everyday classroom can be utilized as an effective learning space, with properly designed learning materials and supported with technology. Malaysian Science Curriculum Standard aims to instill students' interest in science and technology besides expanding their creativity through experience and investigation to master scientific knowledge, skills, attitude and moral values. However, research documented that there is a significant reduction in students' interest in learning Science and in their inability to master science process skills. Hands-on educational games have been highlighted as an effective method to overcome this issue. This study reports on a study on the impact of a science board game embedded with Augmented Reality (AR), on primary school students' interest in and motivation to learning science, and in strengthening their communication and collaborative skills. A pre- and post-test question were administered to the 20 selected participants on-site to study their acceptance towards the learning experiences. The survey was constructed based on the Technology Acceptance Model (TAM) and comprised of 3 sections: perception towards the learning experiences, perception on the easiness of use, perception on the effectiveness of the materials to help learn better. This is followed by an interview with the participants on their perceptions of the effectiveness of the game-based learning approach in helping their learning. Findings indicated that there was a significant increase in students' interest and motivation among students before and after the games. Statistical analyses also revealed a significant increase in students' skills and performances. Learning from this experience, this study proposes a practical framework and guidelines on the effective use of science-based games in developing students' science process skills for teachers who are interested in applying a similar approach to teaching science. Positive changes have been observed among students before and after the games. The observed criteria include interest in science, participation, motivation, communication and cooperation from students. A paired T-test conducted has shown a significant increase in students' performance. Further development of similar gamification in teaching scientific skills for secondary school is possible using the same principles applied in this project.

Keywords: authentic, augmented reality, science, game-based learning, collaborative learning, communication skills

Paper ID: A-13

Creating New Learning Space in the Workplace: The use of Entrustable Professional Activities (EPAs) as a Tool of Learning and Assessment for Entry into a Malaysian Professional Paediatrics Postgraduate Training Program

Anis Siham Zainal Abidin¹, Thong Meow Keong², Vinod Pallath³, Tang Swee Fong⁴, Norlijah Othman⁵, Norzila Mohamed Zainudin⁶, Irene Cheah Guat Sim⁶, Noor Khatijah Nurani⁷, Wan Jazilah Wan Ismail⁸, Farah Khalid², Thong Pui Ling⁵, Noorizan Ab Majid⁹, Hans Van Rostenberghe⁹

¹*Department of Paediatrics, Faculty of Medicine, Universiti Teknologi MARA*

²*Department of Paediatrics, Faculty of Medicine, University of Malaya; thongmk@um.edu.my*

³*Medical Education and Research Development Unit, Faculty of Medicine, University of Malaya*

⁴*Department of Paediatrics, Universiti Kebangsaan Malaysia Medical Centre*

⁵*Department of Paediatrics, Faculty of Medicine and Health Science, Universiti Putra Malaysia*

⁶*Department of Paediatrics, Kuala Lumpur Hospital*

⁷*Department of Paediatrics, Raja Permaisuri Bainun Hospital Ipoh*

⁸*Department of Paediatrics, Selayang Hospital*

⁹*Department of Paediatrics, School of Medical Sciences, Universiti Sains Malaysia*

Dr Thong Meow-Keong is a Professor of Paediatrics and Consultant Clinical Geneticist at the University of Malaya Medical Centre (UMMC). He was a Fulbright scholar and a board-certified clinical geneticist in Australia. He established the first Genetics Clinic in 1995 and head the Genetic Medicine Unit at UMMC. He has been actively involved in medical education since 2000. He was trained in Problem-based Learning at the Southern Illinois University School of Medicine, USA and was overseeing UM clinical PBL program from 2000-2009. Since 2014, he was a member of the National Postgraduate Medical Curriculum steering committee and the National Postgraduate Paediatrics Curriculum writing committee.

Postgraduate medical education is transforming from time-based learning to a competency-based medical education. Entrustable Professional Activities (EPAs) are now used as an assessment tool for competency and achievement of learning milestones in undergraduate medical studies. Currently, junior medical doctors in Malaysia are assessed for entry into postgraduate medical training program on the basis of the level of their knowledge using multiple-choice questions alone. There were no formal assessment of their skills, attitudes and behavior to determine their level of competency or whether they are suitable for further postgraduate training in the specialty area. We aimed to assess the feasibility of EPAs as a

tool for entry into paediatric postgraduate training program in eight Malaysian public hospitals. A prospective cross-sectional pilot study assessing seven EPAs at institutions providing paediatric postgraduate training was conducted. Ethics approval was obtained. The participants received EPAs of various topics one week prior to assessment. After the assessment session, both the trainees and assessors provided feedback via Likert scale on its appropriateness, confidence level, level of difficulty, ease of use, relevance of items and clarity of objectives. A total of 63 EPA respondents (42 from trainees and 21 from assessors) were analyzed. Two-third of the trainees agreed on the appropriateness of the items assessed, 80% agreed their confidence level increased but 50% agreed that the preparation for EPA assessment was difficult. All the assessors agreed on the ease of use, the relevance of items assessed and clear objectives outlined. We concluded that the use of EPAs is an effective assessment tool that measured clinical competency in the workplace and acceptable to both prospective trainees and trainers. In addition, the use of EPAs created a novel learning space in the workplace. A larger and longer study will be needed to assess its long term effects and outcomes. The challenges encountered were additional time was required for the assessments in the workplace and initial hesitancy of a few trainees to participate out of fear. The assessors overcome the first challenge by proper time management and the second challenge was solved by proper introduction and explanation on the purpose of the EPAs to the trainees. At the end of the assessment, many trainees expressed they enjoyed the sessions and learnt much from the EPAs. The EPAs can be implemented for all medical disciplines as it simulates real working situations and assesses skills, attitudes and behavior of the trainees, which is not possible with the traditional method of assessment using MCQs. We believe this pilot study and method used was novel and highly original. We concluded it was feasible to use EPAs for learning and assessment by utilising existing workplace such as hospital wards and clinics into a 'new learning space' for a large number of trainees in a short time for professional postgraduate medical specialist training. To the best of our knowledge, there was no prior precedence on its use in postgraduate medical education in the developing world.

Keywords: Validation, Entrustable Professional Activities, Paediatrics, Postgraduate, Education

Paper ID: A-14

Vocabulary Enhancement through Modern-Day Means for University Students

Rema Menon¹ & Nurulain Sulaiman¹

¹Faculty of Languages & Linguistics; rema@um.edu.my

Rema Menon is a language teacher in the Faculty of Languages & Linguistics, University of Malaya. Her areas of interest are language teaching and learning, assessment and ESP. She has co-authored two books on report writing for business and professional purposes.

Writing is indisputably a very challenging skill to master for L2 learners. Students find it difficult to not only generate and organize ideas but also to translate them into readable text. Besides planning and organizing ideas students also need to be aware of spelling, punctuation and word choices. Based on an analysis of students' achievement in the GLT 1007 (Essential Writing Skills Course) for semester 1, 2017/18 session, a lack of vocabulary knowledge was one of the reasons that made writing a difficult task. This research aims to enhance students' vocabulary using social media – an online learning space that students are familiar and comfortable with. Students were asked to choose a minimum of 5 words per lesson from the Averil Coxhead's Academic Wordlist and they were asked to combine them into a written text as creatively as possible. This text is then published in Facebook, Instagram, Twitter, and Spectrum (Forum). To determine whether there is any development in students' vocabulary, a pre and post test was conducted at the beginning and end of semester. Results reveal that students showed some level of improvement, and part of this is attributed to them being motivated to post in social media more frequently in English.

Keywords: vocabulary, social media, university students, online learning space

Day 2: 25th April 2019 (Thursday)

Session 4 | Venue: Swan Room

Time: 11.00 am – 1.00 pm

Paper ID: B-11

Determining learning space preferences of undergraduate medical students in the University of Malaya

Joong Hiong Sim¹, Chan Choong Foong¹, Vinod Pallath¹, Wei-Han Hong¹, Jamuna Vadivelu¹

¹ University of Malaya; simjhjp@um.edu.my

Sim graduated with BSc & Ed (Hons) from University of Science Malaysia, LLB (Hons) from University of Wolverhampton, MEd (Distinction) and PhD, both from University of Malaya. Sim joined University of Malaya in 2012 and is currently attached to Medical Education and Research Development Unit, Faculty of Medicine, where she manages assessments of the medical programme, conducts assessment workshops, facilitates problem-based learning and teaches courses for Masters in Medical Education. Sim is a reviewer for international journals and is an Oxford Advisory Board member. She was a recipient of University of Malaya Excellence Award (2011), Association of Commonwealth Universities Fellowship Award (2018), among others.

Learning space or learning setting refers to a physical setting for a learning environment, a place in which teaching and learning occur (Cook, 2010). It may also refer to an indoor or outdoor location, either actual or virtual. The physical, and/or virtual, characteristics of learning spaces play an important role in their effectiveness and, by impacting students learning, on society. The study focuses on preferred learning spaces for individual study activities which requires concentration and self-regulation, and preferred learning space for

collaborative study activities which require communication and interaction. In this study, the physical dimension was operationalized in four characteristics: the perceived importance of comfort, aesthetics, ICT facilities, and layout while the degree of interaction, privacy, and autonomy are used to operationalize the social dimension. The purpose of this study is to examine the perceived learning space preferences of undergraduate medical students in the University of Malaya. This is a descriptive study – a survey research. Study participants comprised all pre-clinical students in the Faculty of Medicine, University of Malaya. A total of 310 pre-clinical students (Year 1=151, Year 2=159) from the academic session 2018/2019 participated in the study. The study instrument - a survey questionnaire on learning spaces adopted and adapted from Beckers and colleagues (2016), was used to collect data for this study. The revised questionnaire is a 40-item, 5-point Likert scale item questionnaire with five domains/subscales namely: (i) Relevance of the learning environment (3 items), (ii) Social dimension of the learning environment (7 items), (iii) Physical dimension of the learning environment (14 items), (iv) Learning space preferences for individual study activities (8 items), and (v) Learning space preferences for collaborative study activities (8 items). An open-ended question was included in each domain/subscale for students to respond freely. The narrative data gathered from students' responses could enrich the data for the study. All 3 items in the domain/subscale of "relevance of the learning environment" scored a mean of >4.00/5.00, indicating students perceived learning environment as relevant. Only 2 out of 7 items in the "social dimension of the learning environment" domain/subscale scored a mean of >4.00/5.00 while 9 out of 14 items in the domain/subscale of "physical dimension of the learning environment" scored a mean of >4.00/5.00. This suggests that students perceived physical dimension of the learning environment as more important compared to social dimension. Students' learning space preferences for individual and collaborative study activities are distinctly different. For the former, students prefer a quiet learning space at home or in a library while for the latter students prefer a common area where group discussion is possible.

Keywords: Physical or virtual learning space, learning space preference, physical or social dimension of learning space, individual or collaborative learning, undergraduate medical students.

Paper ID: B-12

From Passive to Active Learning: The Weaning Model

Nur Azah Hamzaid¹

¹ Faculty of Engineering & Academic Enhancement and Leadership Development Centre, University of Malaya; azah.hamzaid@um.edu.my

Dr Nur Azah Hamzaid, BEng (Mechatronics)(Honors), is at Biomedical Engineering Department in UM. Dr Azah, as known by her students in UM, teaches Biomechatronics, Prosthetics & Orthotics, FES and Rehabilitation Robotics. She was the Coordinator of Bachelor in Biomedical Engineering (Prosthetics & Orthotics) program. She is currently the Head of Research Training Unit in Academic Enhancement and Leadership Development Centre, UM. Her aim is to improve the Rehabilitation Engineering field in

Malaysia by uplifting the knowledge and application through quality teaching and curriculum enhancement via industrial involvement, better student experience and participation in and out of class and in research.

This paper proposed a model to wean university students who are very used to rote-learning or passive learning from their school system and are entering university setting which encourage active learning. University lecturers in general are not used to adopting active learning where they have to be the 'guide-on-the-side' rather than the 'sage-on-stage' as majority of them came from and was trained in the traditional setting of passive learning themselves. The change in students' behaviour and acceptance are one of the factors that impedes voluntary trial of adopting active learning in class themselves. The weaning model of passive to active learning lays out **three** main consideration stages that lecturers have to make, which are planning, execution, and feedback. During planning, active learning activities should be planned out for the whole semester with considerations on the number and types of activities, the synchrony of them all and the build up towards an 'end game' activity which usually has the highest weightage and positioned at the last week. Quite significant consideration has to also be given to the students' background and readiness when the activity planning is done, in order for the 'change' that are to be introduced are palatable to them. The execution of the active learning activity must be aligned to the course objective or learning outcome so to ensure the students are able to relate to the main knowledge content and intended skills of the course, especially if the course is a hard-theoretical course or is heavily calculation-oriented. The other component of the model is the communication and feedback throughout the class and throughout the semester. This is the key to ensuring students' expectation and resistance are met and dealt with positively along the way. Sufficient, and at times, personalised scaffolding is useful to support those individual students who need more attention and would keep them on par with the rest of the classmates. Last but not least, the main ingredient of the formula is for the lecturer to be in charge of the achievement of the course outcome, while keeping themselves flexible and fluid to the needs and acceptance of the students. These skills, mastered through practice, would make students engaged and value the meaning of the courses delivered, making them more adoptable to active learning in the end.

Keywords: Weaning Model, active learning

Paper ID: B-13

Enhancing Students' Learning during Laboratory Session through Hybrid Computer Simulation-Hands-on Experiments

Hazlee Azil Illias¹, Mahmoud Moghavvemi¹, Effariza Hanafi¹

¹Department of Electrical Engineering, Faculty of Engineering, University of Malaya, 50603 Kuala Lumpur, Malaysia; h.illias@um.edu.my

Hazlee Azil Illias received the Bachelor's Degree in Electrical Engineering from the University of Malaya (UM), Malaysia in 2006 and PhD in Electrical Engineering from the University of Southampton, UK in 2011. He was a Senior Lecturer in the Department of Electrical Engineering, UM from 2011 to 2017 and an Associate Professor since 2017. Since joining UM, he has received funding and grants of nearly RM 2.8M (~USD 0.88M), published more than 50 journal papers in ISI-indexed publications and 40 refereed conference papers and successfully supervised to completion of 7 PhD, 4 Master's Degree by research and 24 Master's Degree project candidates.

Traditionally, undergraduate students in the Department of Electrical Engineering, Faculty of Engineering performed electrical or electronics circuit experiments in the laboratory without doing any pre-lab test. After learning the related topics or theories in the lecture, students attended a lab session and performed an experiment immediately without making any preparation before the lab session. The most important preparation missing was what the expected results from the experiment were. As a result, during lab session, most of the students were not sure whether the results obtained from their measurement on the electrical or electronics circuit were correct or not. After completing the measurement, they were unable to validate whether the obtained results were similar to the expected results or not. This resulted in them to be over dependent on the laboratory demonstrators by asking for help frequently and consuming a lot of time in identifying the expected results. Therefore, to overcome this problem, one of the proposed solutions is by introducing a pre-lab session before students perform the actual electrical or electronics circuit experiments in the laboratory. The pre-lab test consists of electrical or electronics circuit simulation using a computer simulation software, PSpice Schematics. Before the experiment session, students constructed a circuit according to the actual experiment circuit in the PSpice Schematics software and simulated the circuit that had been constructed. The obtained simulation results were used to validate the hands-on measurement results that were obtained by students in the laboratory immediately after that. Using PSpice Schematics software, students can also simulate

the circuit using various parameter values, such as resistance, inductance and capacitance, to observe the effect of different parameter values on the output of the circuit. This can enhance students' understanding on the actual hands-on experiment that is performed in the laboratory after performing the computer simulation work. In the end of this research, the impact of introducing computer simulation into laboratory session on students' learning was assessed. The proposed solutions in this project can also be applied by other departments and faculties in the University of Malaya using a suitable computer simulation software related to the experiment sessions.

Key words: Laboratory Session, Computer Simulation, Hands-on Experiments, Electrical and Electronics Engineering

Paper ID: B-14

Community Placement as a teaching tool and learning space for Oral Health Promotion Project: Learning Experience and Reflections of Dental Students and the Community

Marhazlinda Jamaludin¹, Jenenifer Geraldine Doss¹, Nor Azlida Mohd Nor¹

¹Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya; marhazlinda@um.edu.my

Dr. Marhazlinda Jamaludin graduated with a Bachelor of Dental Surgery from University of Malaya and obtained her second degree Master in Community Medicine (Oral Health) from University Science Malaysia. Currently, she works at the Department Of Community Oral Health and Clinical Prevention, Faculty of Dentistry, University of Malaya. Her areas of expertise are Epidemiology, Research Methodology and Biostatistics, and her research interests include Oral health inequality, Smoking, Quality of Life, Cleft lip and palate and Dental education. She is currently one of the main committees who looks into dental curriculum review for undergraduates in Faculty of Dentistry, University of Malaya.

Community placement is a practical, field, experiential learning activity designed for undergraduate students in Year 4 at the Faculty of Dentistry, University of Malaya. It acts as a teaching tool and a learning space for the students to translate the theory and principles of Oral Health Promotion (OHP) and Socio-behavioural Science (SBS) into practice and demonstrate their soft skills including communication, critical thinking, problem-solving, team working, leadership and information management and life-long learning skills. Dental students have to plan a comprehensive program to promote oral health among the village community which comprises of planning, implementation, and evaluation of an oral health promotion projects in a community setting. Assessing the students' learning experiences and

reflections on community placement for OHP project will inform us whether this method is effective in achieving the learning outcomes. The objectives of this study were to assess dental students' reflections on a community placement as a teaching tool and learning space to translate the theory and principles of OHP and SBS into practice; to investigate dental students' learning experiences during conducting an oral health promotion project in a rural community, and to explore community's feedback on the community placement conducted to promote oral health among the village community. For four days, a total of 53 fourth-year undergraduate dental students of the University of Malaya had stayed with their foster parents in a selected village at the outskirts of Kuala Lumpur. Before the placement, the students had went to the village to undertake situational analysis of the health problems faced by the pre-schoolers, schoolchildren and adults in the community. Subsequently, during the placement, the students had delivered creative and innovative oral health promotion activities to the pre-schoolers and primary schoolchildren; had undertaken dental check-ups and dental exhibition for the adults; had organized and participated in a cultural night together with the community, and had studied the socio-behavioural aspects of the community. At the end of the project, all dental students were asked to answer a self-administered questionnaire on their learning experience in terms of the full cycle of planning, implementation, and evaluation of OHP project, and to reflect on the community placement as a teaching tool and learning space for OHP project in a community setting. Feedback forms were given to the teachers and focus group discussions were conducted among 14 foster parents to assess feedback on the community placement and the oral health promotion project. The method was planned as such because the fundamental aspect of health promotion is that it aims to empower people to have more control over aspects of their life. Developing personal skill and strengthen community action, therefore, are important. For this project, the target groups frequently involve pre-schoolers, schoolchildren, teachers, and adults. A smart partnership is crucial for sustainability; thus the students have to work with the teachers and community leaders to ensure the success of their oral health promotion project. A vast majority (>95%) of the students agreed and strongly agreed that community placement is a useful teaching tool and appropriate learning space to translate the theories of OHP into practice and to experience and learn the full cycle of oral health promotion project including the planning, implementation, and evaluation of the project. Among the main impacts were almost all the students reported that this community placement and the activities had succeeded in improving their soft skills particularly teamwork, creative thinking, critical thinking, communication, and problem-solving skills. Although not all results have been analyzed at this stage, but the findings on the experience and reflections among the students strongly indicated that community placement as a teaching tool and learning space for an oral health promotion project is effective and appropriate to achieve the learning outcomes for this module.

Keywords: Community Placement, Oral health Promotion, Undergraduate students

POSTER SESSION ABSTRACTS

Day 1: 24th April 2019 (Wednesday)

Session 1 | Venue: Phoenix Ballroom

Time: 8.30 am – 5.00 pm

Paper ID: P-01

Differences in Impact of Virtual and Various Physical Learning Spaces on Pupils from Urban and Rural Schools

Grace Gayathri A/P Ramakarsinin¹

¹*Sekolah Kebangsaan Temiang, Negeri Sembilan; graceleah68@gmail.com*

Ms. Grace Gayathri A/P Ramakarsinin is an English Language teacher in Sekolah Kebangsaan Temiang, Seremban, Negeri Sembilan. She has been teaching for 7 years. She has a degree in Education majoring in Design and Technology. She has earned a Master Degree also in Education majoring in Education Management and Policies. She is currently working on her doctorate degree in Instructional Technology of Education. Her interest are in English Language teaching and practices, instructional technology and education policies. She is currently working on developing teachers' training module for refugee teachers through Massive Open Online Courses (MOOC).

As the education transformation was again discussed and dialogued nationwide, the Malaysian Ministry of Education took a leap forward in introducing 21st Century Learning which was a systemic move from traditional the education system to a modern more dynamic education system which caters to the change from industrial-age education to post-industrial education. The ministry has introduced the 21st Learning Classroom and The Frog Classroom which provided various learning spaces in national schools. This study was conducted in two schools, one being an urban school and the other a rural school, to study the differences in the impact of using virtual and physical space. The data is collected through questionnaires and interviews by the researcher. The results for both, urban and rural school, indicate that by creating these 21st-century classrooms with various types of active physical learning space, pupils are more engaged with others and their tasks. They are also more creative this learning space caters to different learning styles, thus leading to a slight increase in academic achievement in both schools. As such, there are no significant differences when it comes to physical learning platforms for both of these schools. The results from the data collected, however, show a significant difference when it comes to the virtual learning environment. The results indicate that most urban school pupils have actively used the Frog Classroom and have a collaborative network among themselves and their teachers. On the other hand, rural school pupils are reluctant to use the Frog Classroom and usually don't have many

interactions with other pupils in the virtual environment. The small number of pupils who use Frog Classroom are often passive and use it only to complete their tasks.

Keywords: learning space, virtual, urban school, rural school

Day 1: 24th April 2019 (Wednesday)

Session 2 | Venue: Phoenix Ballroom

Time: 8.30 am – 5.00 pm

Paper ID: P-05

Augmented reality learning space: An innovative approach to support science teaching and learning

Teo Yi Sin¹, Farrah Dina Yusop¹

¹ Faculty of Education, University of Malaya; teoyisin@gmail.com

Teo Yi Sin is currently a Master student at the Faculty of Education, University of Malaya (UM), Malaysia. She received her Bachelor in Education from National Taichung University of Education (NTCU), Taiwan. She was also rewarded with Honors Students Award by Taichung City Government and Model Students Awards by NTCU during her graduation. She has experience in the sphere of teaching, online tutoring and curriculum design, both locally and internationally, in the area of early childhood education (ECE), elementary education, and tertiary education. Her major research interest as research assistant focuses on strategy intervention for online reading, virtual learning, technology-enhanced learning (TEL).

The purpose of this study was to investigate the suitability and effectiveness of utilizing augmented reality in teaching science experiment for Malaysia formal secondary school settings. AR is widely acknowledged to have potentials to present a useful learning context for teaching and learning science, especially in laboratory setting. This case study employed a mixed method research design to investigate the effectiveness and impact of applying AR tool named ProSci-AR, on students' collaborative learning strategies and science manipulative skills in the context of a science experiment. ProSci-AR is a marker-based AR product created to assist teachers to deliver the correct science manipulative skills and engage students in team-based science learning. Participants of this study were a group of secondary school students aged 16 years old enrolled in biology course. With a handout provided, students were required to scan the markers attached, watched the overlaid and superimposed videos while simultaneously performing dissection on real frog. They were later asked to complete a collaborative worksheet that reflects their epistemic understanding of the topic and experiences in completing the AR-supported cooperative work. A short survey was administered to each student to gauge their perceptions and perceived values of utilizing AR-based tool and materials in learning about performing science experiment. Findings indicated that students self-reported a more positive attitude towards the AR-mediated collaborative

learning quomodo. Majority students agreed that ProSci-AR application promotes their understanding of the procedure to manipulate the experiment and their participation in the collaborative manipulation of the science experiment. Students also opined that the AR application was beneficial for team-based collaborative learning, enabling students to do self-directed learning (SDL) and conducting the science experiment in accordance with their own learning pace. The adoption of AR application was encapsulated to enthrall them to be more engaged in the lesson and more familiar with the learning contents. In addition, the science teacher who participated in the study agreed that she also benefited from the experience as she was able to provide more personalized guidance to students compared to not using the application. This study concludes by providing practical suggestions on utilizing AR-based tool in strengthening students' interest in learning science and improvement of their science manipulative skills, and for teachers who are interested to apply it in their classrooms.

Keywords: Augmented reality (AR); Science manipulative skills; Collaborative learning.

Paper ID: P-06

Encouraging Learning by Design: Context Specific Educational Packages in Shared Learning and Working Spaces

Noorjahan Haneem Md Hashim¹, Chaw Sook Hui¹, Wan Aizat Wan Zakaria¹, Shairil Rahayu Ruslan¹
¹Faculty of Medicine, University of Malaya; noorjahan@um.edu.my

Wan Aizat binti Wan Zakaria Studied medicine in Cardiff University, and graduated with an MBBCh in 2008. Joined as a Trainee Lecturer in Anaesthesiology Department, University Malaya in 2011. Subsequently graduated from the Master of Anaesthesia programme, University Malaya in 2016. Currently subspecialising in Neuroanaesthesia with a special interest in Medical Education and Advanced Airway Management.

The Pharmacology examination has an average passing rate of 37% in the past four academic years. This has caused our trainees extensions of their Master of Anaesthesiology candidature and disruption of their training causing loss of the Public Service Scholarships at the end of four year of training. With the increased clinical workload, and reduced trainer: trainee ratio, time and intensity of teaching and learning activities are limited. Currently, basic science (includes Pharmacology) learning occurs in the classroom, away from the clinical areas, where trainees discuss basic concepts with trainers. This study aims to increase the Pharmacology passing rate from 37% to 50% in May 2019 and reduce trainer and trainee anxiety during learning in clinical areas using the Perceived Stress Scale. A four staged mixed method study is conducted. Needs assessment was performed to gain trainers and trainees perspectives on the proposed intervention. Proposed core topics are mapped against the Pharmacology blueprint and previous examination questions to ensure core topics are covered in the intervention. A core group of faculty members comprised of Pharmacology examiners and

teachers, prepared viva questions, answers and feedback guides for trainers according to the curriculum blueprint. Each week, a laminated set of six questions and answers are placed in the Main Operation Theatre complex. A weekly briefing for the trainers is performed. The trainees are expected to attempt the questions on a daily basis and log the questions attempted. A focus group interview will be conducted at the end of the project to elicit trainers' and trainees perception of trainees' knowledge and examination readiness. Trainers and trainees stress will be measured with the Perceived Stress Scale. All 15 of Year 1 trainees (first attempt) are keen to participate. We included basic concepts of pharmacokinetics and pharmacodynamics and five core anaesthesia drugs (intravenous anaesthetic agents, inhaled anaesthetic agents, drugs affecting the neuromuscular junction, local anaesthetic agents and analgesics) as the topic to base the vivas on, based on the blueprint, and review of previous examination questions (50- 60% of questions asked are based on these topics). We included one question from each group every week. We believe if the basic science teaching is performed in a safe and protected bubble in the clinical area, trainees will not only be able to close their knowledge gaps, but also has the opportunity to link their theoretical knowledge to the clinical context.

Keywords: pharmacology, shared learning, working space, learning by design

Paper ID: P-07

Introducing Entrepreneurial Design Thinking: How to Incorporate Design Thinking Principles into an Entrepreneurship Course

Kannaki Vaithlingam¹, Ponmalar N Alagappan¹, Wong Seng Yue¹, Irene Yong Seok Ching¹

¹ Centre for the Initiative of Talent and Industrial Training, University of Malaya;

kannaki.v@um.edu.my

Kannaki Vaithlingam, PhD, is a senior lecturer at Centre for the Initiation of Talent and Industrial Training, University of Malaya, Malaysia. Her current position is Senior Lecturer for subject, Basic Entrepreneurship Culture and Introduction to Malaysia. She has been serving as a lecturer for more than 15 years and taught university courses. Her research focused on women, entrepreneurship, teaching and learning. Social entrepreneurship and community contributions was her notable research works. Her research work has seen print in chapter of the book and e-journals.

These days, significance of open innovation is increasing since business environment is changing rapidly. In addition, the role of startup firms is becoming important because of their agility and flexibility to create new innovative businesses. In this context, design thinking attracts attention from many areas of industries, since it gives an effective and systematic way to induce human centric innovations. In this paper, current status of novel approach of

entrepreneurship education based on design thinking is overviewed. The paper also discuss the shortage of current entrepreneurship education based on design thinking. Based on a review of different design thinking concepts we carve out a generic design thinking model upon we conceptually build a new model that considers entrepreneurial thinking as a valuable characteristic. The results show that the characteristics of entrepreneurial design thinking can enhance entrepreneurship education by supporting respective action fields of entrepreneurial learning. In addition we reveal that entrepreneurial design thinking offers beneficial guidelines for the design of entrepreneurship education programs. This study is based on an inductive case study of the implementation of Design Thinking approach in classroom. A total of 3 classes with 100 students each will be chosen. The Design thinking approach will be introduced and implement in the 14 weeks of classes. Creativity innovation concept will be absorbed in the Design Thinking approach whereas pre and post evaluation will be done to evaluate the adaptation of this approach in classroom. Considering our question has an open-ended, “asking-how” nature, an explorative case approach is a suitable approach because it can generate insights from the in-depth description. Data covering the program will gathered from insider action research.

Keywords: entrepreneurship, design thinking, classroom, tertiary students, teaching methods

Paper ID: P-08

Atypical Learning Spaces: *Out of the Box T&L! Out-of-Class and Out-of-Clock . . .*

Amira Firdaus¹

¹*Department of Media & Communication Studies, Faculty of Arts & Social Sciences, University of Malaya; amira_firdaus@um.edu.my*

Amira Firdaus is Deputy Director and Head for Leadership & Wellbeing (LeadWell) at University of Malaya's Academic Enhancement and Leadership Development Centre (ADEC). She is also on the faculty of UM's Department of Media and Communication Studies at the Faculty of Arts and Social Sciences . At work, Amira, organizes sharing sessions, workshops and talks on Happiness and Wellbeing. She is also planning learning and development (L&D) to promote Positive Organizations, Positive Leadership and Positive Education. At home, she tries what she can to practice strengths-based Positive Parenting. Amira practices Positive Communication and subscribes to a Growth Mindset.

I face somewhat atypical T&L issues in two realms – occupational and personal. Occupationally, I have multiple responsibilities in my job as an academic – teaching, researching, supervising student projects, as well as administrative contributions at my teaching department. This is actually typical for most academics. However, what is slightly atypical in my case, is that I am also an academic administrator, wherein I currently hold an administrative position at a central university office that is external to my teaching department, whilst simultaneously shouldering a full departmental academic load. My slightly

atypical occupational circumstance coincides with a more inherent (*and highly atypical*) personal teaching preferences. More so than my colleagues, as a "lecturer" I don't see myself as a "teacher", but as a co-learner alongside my students because I am more comfortable learning, than I am teaching. Thus, I find it challenging to thrive as a teacher in a traditional classroom. To execute my T&L duties, I am forced to reimagine the learning spaces (and time) within which classroom teaching and learning typically takes place. Through a number of critical incidents, a realization dawned upon me that I didn't necessarily need to conduct my classes within the space and time constraints dictated by the semester weekly schedule. I realized that it was relatively easy to arrange virtual online classes as a replacement for my regular face to face class. So, I experimented with substituting the formal physical learning space with a formal virtual learning space in the form of my university's official Learning Management System (LMS), as well as informal virtual learning spaces in the form of a class social media page (e.g. Facebook Page). I also replaced a formal class time with an informal out-of-office-hours learning sessions that some students attended virtually in real time while a few others caught up with the lessons on-and-off via asynchronous communication. Similarly, I have made use of formal and informal physical learning spaces to conduct classes, such as the seminar room at my office. On rare occasions, with small student numbers, I have also conducted classes in nonformal out-of-campus locations including my home, my car and common spaces on campus such as the department foyer, or library carpark. Notwithstanding the impromptu nature of my out-of-classroom and out-of-schedule formal classes, I discovered that this approach not only solved my frequent scheduling conflicts, but it also slightly soothed my T&L-related anxiety and stress. For now, my use of these atypical learning spaces and out-of-schedule class times presents a convenient adhoc solution to my scheduling conflict and a soothing mechanism for my teaching preferences. Moving forward, I will need to go beyond self-reflection and move into true Scholarship of Teaching and Learning (SoTL) to engage with my students' reflections and take better advantage of the range of formal, informal and nonformal physical and virtual learning spaces so that I may better facilitate learning for my students and find joy in teaching for myself.

Key words: learning spaces; blended learning; teaching styles; autoethnography; positive reframing

Day 2: 25th April 2019 (Thursday)

Session 3 | Venue: Phoenix Ballroom

Time: 8.30 am – 5.00pm

Paper ID: P-09

Student engagement and its impact on achievement in a blended learning environment: A Wawasan Open University case study

Jasmine Selvarani Emmanuel¹, Phalachandra Bhandigadi¹, Chng Lay Kee²

¹*Wawasan Open University; jasmineemmanuel@wou.edu.my*

²*Universiti Sains Malaysia*

Jasmine Selvarani Emmanuel has served in both public and private educational sectors for the past 36 years. She has served as key personnel for the Ministry of Education at state and federal levels. She has much experience as a consultant and has written many modules and books related to English teaching and other areas. As a qualified HRDF trainer, she has done training in educational institutions, hospitals and industry. She was the Deputy Vice-president (academic) of Disted College, Penang previously and is currently the Deputy Dean of the School of Humanities and Social Sciences at Wawasan Open University in Penang.

Wawasan Open University (WOU) provides working Malaysians access to quality higher education via Open Distance Learning (ODL) regardless of their educational, ethnic or socio-economic backgrounds. Many of them enter university studies through the open entry system and not traditional routes. As admission of students into higher education involves students from diverse backgrounds, including diversity of ability, age groups and educational backgrounds, WOU faces the real challenge of effectively engaging and supporting these students so that they are retained in the system and are successful in their studies. Krause (2005) explains that institutions should be most concerned when students are not receiving targeted assistance resulting in their failure to engage. For many of these students, this may ultimately result in failure to persist and succeed. A special area of concern is the inertia apparent in first year students because it is closely aligned with student dissatisfaction and potential to withdraw from study. The purpose of this paper is to share the efforts made by Wawasan Open University to enhance the levels of student engagement in five factors in terms of participation in Tutorial classes, Learning Management System (LMS), WhatsApp Groups, Communication with the tutor through mails and telephone, and motivation and Interest in learning activities. This intervention was carried for a starter (enabler) course called Learning Skills for University Studies which is a first level course. About 600 students enroll in this course every semester. The tutors who are the first contact persons in Open Distance Learning were oriented about the student engagement process and the process of rating the students on a 10 point scale on the 5 factors stated above. The tutors were requested to keep a record of each student with respect to these five factors over a period of 5 months. At the end of the semester each student was rated. A sample of 150 students' data was analysed in relation to the five factors. The score on each factor was correlated with the

marks obtained on three components of assessment namely assignment (OCAS- overall continuous assessment score, OES- overall examination score and CS-Course Score). The findings indicate that three factors (Students' participation in tutorial classes, participation in the Learning Management System and motivation and Interest) out of the five factors had significant relationships with all the three components of assessment.

Keywords: student engagement, blended learning, student performance

Paper ID: P-11

Promoting Greater Interactivity and Participative Learning through Effective Design of Learning Spaces in the Age of Technology: A Study Emphasis Towards Slow Learners in STEM Disciplines

S.Wan Muhamad Hatta¹, E.Hanafi¹, C.M Poo¹, S.C Chin¹

¹*Department of Electrical Engineering, Faculty of Engineering, University of Malaya; Sh_fatmadiana@um.edu.my*

Dr.Sharifah Fatmadiana is a senior lecturer at the Faculty of Engineering, University of Malaya since year 2014. She graduated with an MEng in Electrical Electronics Engineering (University of Sheffield, UK) in 2005, MSc in Microelectronics (University of Malaya) in 2009 and PhD in Microelectronics (LJMU,UK) in 2014. Her research interests include emerging technologies in wearable electronics and advanced semiconductor modeling. She has co-authored in more than 20 journals and conference proceedings. She has collaborated with industries namely MIMOS and IMEC Belgium as well as academic institutions namely LJMU, UK. She is affiliated with the IEEE and IEEE Electron Devices Society.

Existing learning spaces are designed according to cost limitations, pedagogical and scheduling implications of the designer and the design of the learning spaces is generally informed by the user to the university planners, by what exists at other institutions and by industry post occupancy surveys or interviews rather than by researching on the impact of learning space on the teaching/learning processes and outcomes of that particular university/faculty which the learning space is to be designed for. This study will investigate on the effectiveness of the learning spaces, particularly towards students who are constrained in their learning abilities and attentiveness. For the proposed research, special focus will be targetted to the students of having a CGPA of less than 3.0 within the faculty of Engineering and faculty of Science at the University of Malaya. A minimum of 50 students participants will be involved in this research. Methods on how to enhance the learning spaces will be adopted and this research aims to investigate on how the students perceive these spaces as effective learning spaces. The survey instruments to be adopted will be i. General student survey, ii. Classroom observation form, iii. Student focus group questions (specifically for students of

CGPA less than 3.0) and iv. Faculty focus group. The contribution of this research evolves in addressing how students' perceptions, particularly students' falling in the group of 'slow learners' or students' having learning disabilities, benefit in the design of learning spaces. The work investigates on whether the students are using these spaces due to the lack of choice, thus causing them to adapt their learning activity to their surrounding.

Keywords: STEM, slow learners, design learning spaces, technology

Day 2: 25th April 2019 (Thursday)

Session 4 | Venue: Phoenix Ballroom

Time: 8.30 am – 5.00 pm

Paper ID: P-12

Drama and Cube: Understanding the Effectiveness of using Drama to Teach Presentation Skills to Band 2 Muet Students

Farril Daniel bin Zainal¹& Mohamed Iskandar Rahmad Sukor¹

¹*Faculty of Languages & Linguistics, University of Malaya; farril@um.edu.my*

A TESL graduate from UiTM, Farril Daniel Zainal has been a member of the Language Unit in the Faculty of Languages and Linguistics of University Malaya since 2012 where he teaches university English courses to undergraduate students. At present, his research interest include using drama elements to teach English as well as using extensive reading in class.

As part of an ongoing effort to bolster the learning of English in University Malaya, the Language Unit initiated several programs. *Let's Perform* represents one such initiative. The goal of *Let's Perform* was to have 2 groups of MUET Band 2 students produce and perform, within the space of twelve weeks, an original play of about 20 minutes of length in English. The coming Semester One, 2018/19 will be the second time this program will be carried out. The project goal is to identify the effectiveness of *Let's Perform* in improving the speech communication skills of the participants. This was achieved by a comparison of oral test scores as well as a questionnaires and interviews with the participants. Data analysis in the form of descriptive mean and standard deviation analysis as well as analysis of variance (ANOVA) differential analysis were tabulated. It is hoped that the research will hopefully pave the way towards more programs involving the use of drama at the tertiary level in Malaysia.

Keywords: English, language, speech, communication

Paper ID: P-13

The Effectiveness using Digital Comics in Study Proverbs

Zainuddin Wahono¹, Zamri Mahamod²

¹*Sekolah Kebangsaan Olak Lempit, Ministry of Education; zainuddinwahono@gmail.com*

²*Faculty of Education, The National University of Malaysia*

Zainuddin bin Wahono is a Malay language teacher in Sekolah Kebangsaan Olak Lempit, Banting. He has a degree in education majoring in Malay language. Previously, he studied in Institute of Teacher's Education Bahasa Melayu campus before continuing his studies in University Kebangsaan Malaysia. He has been serving as a teacher for almost 5 years. Professor Dr Haji Zamri bin Mahamod is a professor in education, majoring in Malay language and teacher's education in the education faculty in UKM.

This research to study the effectiveness of using digital comics in the learning and facilitation process (L&F) to improve the achievement of proverbs year 5 pupils in the teaching of Malay language. This research is quasi-experimental study. The research was conducted in a school within the Kuala Langat district which involves Year 5 pupils. The research participants comprises of 30 pupils in experimental group and control group. This study aims to assess the effectiveness of the use of digital comics in enhancing the understanding of pupils in the use of digital comics in learning proverbs of Malay language. Pupils were not able to understand well on the usage of proverbs due to its abstract and deep meaning. Within this research, the researcher had used pre-test and post-test as the test instrument in order to compare the achievement of the experiment group and the control group in the learning of proverbs. Indirectly, enable the researcher to identify the level of effectiveness of the usage of digital comics and the difference in terms of performance of both groups. Inferential statistics were used for the analysis of mean score and t-test. Confidence level of $p < .05$ was used as the significant level. The data obtained was analysed by using the 23rd version of Statistical Package for Social Sciences (SPSS) programme. The findings of the research was analysed using inferential statistics. The inferential analysis shows the results of the study null 1 hypothesis, which shows no significant difference in the performance of the pre-test score in the proverbs test between the experimental group and the control group were no significant ($t = -0.879$, $df = 38$, $p > 0.05$). Therefore, the null 1 hypothesis failed to be rejected. The results of null 2 hypothesis which is there is no significant difference in the performance of the post-test in the proverbs test between the experimental group and the control group were significant ($t = -0.879$, $df = 58$, $p < 0.05$). Therefore, the null 2 hypothesis is rejected. The implication of this research shows that pupils were able to understand proverbs without having to memorise and were able to use proverbs in building sentences as well as to compose a more grammatical essay. In conclusion, the usage of digital comic was able to increase pupils' proverbs skill and answers to the research questions. It is suggested to use digital comics in other subjects such as Science, English language as well as Islamic Studies.

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Besides that, the researcher suggests for further redesign of the research by using multiple regression analysis in order to identify variables with would provide direct and indirect effects towards pupils' achievement in proverbs and further develop factorial model which would affect pupils performance in proverbs.

Keywords: Learning and facilitation process (L&F), Digital comics, Proverbs