Singapore Learning Design And Technology Conference

Singapore Learning Design and Technology Conference 2019

PROGRAMME & ABSTRACT BOOK

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Programme Book

1st August 2019

Venue: Grand Copthorne Waterfront Singapore Level 3 (Galleria Ballroom)

REGISTRATION: 09:30 – 09:50

SLDT 2019 OPENING: 09:50 – 10:00

Professor Emeritus Chanita Rukspollmuang, Ph.D.

Vice President for Academic Development

Siam University, Bangkok, Thailand

KEYNOTE SESSION I: 10:00 – 10:45

Design Thinking as a Strategy in General Education Revision

Professor Emeritus Chanita Rukspollmuang, Ph.D.

Vice President for Academic Development

Siam University, Bangkok, Thailand

COFFEE BREAK: 10:45 – 11:15

KEYNOTE SESSION II: 11:15-12:00

Assessment, is it driving Learning Design?

Dr. Jeremy Pagram

Edith Cowan University

BUFFET LUNCH: 12:00 – 13:30 (Food Capital)

SESSION I: 13:30 – 15:30

Room: Galleria Ballroom

Session Chair: Lawrence G Gundersen, Jackson State Community College, USA

Impact of pedagogical space design on collaborative learning in tertiary education
Edmond WM Lam, SPEED, PolyU, Hong Kong; Irene Wong, BRE, PolyU, Hong Kong; Daniel W.M. Chan, The Hong Kong Polytechnic University, Hong Kong

Real-World Learning with Augmented Reality
David Watson, Educational Development Centre, The Hong Kong Polytechnic University, Hong Kong; Chloe Lau, School of Hotel & Tourism Management, PolyU, Hong Kong

Amplifying Indigenous Healthcare in Rural Guatemala
Frederic B Lim, Healer2Healer.org, USA

Basalenial (Milenia Waste Bank) as CTL learning model for elementary school students to improve environmental education quality
Siti Nur Sa'adah, Semarang State University, Indonesia

Re-thinking Learning Design: Re-conceptualising the role of the Learning Designer in pre-service teacher preparation through a design-led approach
Steven Kickbusch, Queensland University of Technology, Australia; Natalie Wright, Queensland University of Technology, Australia; Jason Sternberg, Queensland University of Technology, Australia; Les Dawes, Queensland University of Technology, Australia

COFFEE BREAK: 15:30 – 16:00

POSTER SESSION: 15:30 – 16:00

Diversification of study materials with regard to student's abilities
Zuzana Václavíková, University of Ostrava, Czech Republic

Corpus-based Evaluation of the Global Competence for Computer-assisted Studying Abroad
Katsunori Kotani, Kansai Gaidai University, Japan; Mayumi Uchida, Kansai Gaidai University, Japan

SESSION II: 16:00 – 18:00

Room: Galleria Ballroom
Session Chair: Steven Kickbusch, Queensland University of Technology, Australia

Fifth Generation Online Courses: Gaming, Access, and Portability
Lawrence G Gundersen, Jackson State Community College, USA

Learning and Teaching in a digital age: using visual tools to support diverse classrooms
Xin Zhao, University of Sheffield, UK; Andrew Cox, University of Sheffield, UK

Enabling students to learn hands-on technical skills using Makerspace in a Higher Education academic library.
VanRensburg Henriette, University of Southern Queensland, Australia; Stephanie Piper, University of Southern Queensland, Australia

Capturing the method of arriving at an answer choice for an MCQ to generate new insights for learning design.
Umesh Kumar G L Gandla laddagiri, XAMPLAY, India

Teaching the way they learn: Using Moodle to differentiate instruction
Pearl Subban, Monash University, Australia

An investigation of design principles for the development of e-Learning packages
Soofrina Mubarak, Dyslexia Association of Singapore, Singapore

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2nd August 2019

Venue: Grand Copthorne Waterfront Singapore Level 3 (Galleria Ballroom)

WORKSHOP PART 1 'Technologies in and beyond the classroom': 09:00 – 10:00

Introduction
By: Ms. Zina Cordery and Dr. Hendrati Nastiti (Edith Cowan University)

COFFEE BREAK: 10:00 – 10:30

WORKSHOP PART 2 'Technologies in and beyond the classroom': 10:30 – 12:00

'Innovating business, industry and education with Immersive Technologies'
By: Ms. Zina Cordery (Edith Cowan University)

BUFFET LUNCH: 12:00 – 13:30 (Food Capital)

WORKSHOP PART 3 'Technologies in and beyond the classroom': 13:30 – 15:00

'One Question Interview App'
By: Dr. Barnard Clarkson (Edith Cowan University)

COFFEE BREAK: 15:00 – 15:30

WORKSHOP PART 4 'Technologies in and beyond the classroom': 15:30 – 17:00

'The Second Language Teaching Tool'

Dr. Alistair Campbell, Edith Cowan University, Australia

SLDT 2019 CLOSING: 17:00 – 17:30

Dr. Jeremy Pagram

Edith Cowan University

END OF CONFERENCE

Abstract Book

1st August 2019

Venue: Grand Copthorne Waterfront Singapore Level 3 (Galleria Ballroom)

REGISTRATION: 09:30 – 09:50

SLDT 2019 OPENING: 09:50 – 10:00

Professor Emeritus Chanita Rukspollmuang, Ph.D.

Vice President for Academic Development

Siam University, Bangkok, Thailand

KEYNOTE SESSION I: 10:00 – 10:45

Design Thinking as a Strategy in General Education Revision

Professor Emeritus Chanita Rukspollmuang, Ph.D.

Vice President for Academic Development

Siam University, Bangkok, Thailand

Abstract

"Tomorrow's world will not be the same as today's". It is thus time to rethink about what we should offer to the students in our institution. Considering the fact that educational and social problems are multifaceted, cross-disciplinary, human-centered, and rarely solved through simple or linear solutions, new approach is needed to redesign our programs of study. Siam University decided to revise our general education (GE) program as a pilot study for curriculum reform. After thorough studies, the university decided to apply design thinking (DT) as a working approach. The DT model has five phases or stages, also referred to as modes, which are worked through towards problem solutions or resolutions. These five modes are: empathize, define, ideate, prototype, and test. In the first stage, "Empathize", our attention was focused on how the students, as end users, could provide insights into their own learning experiences and their expectations on general education program. Major "pain points" that needed to be solved must be identified. In doing so, questionnaire survey and interview were used to collect data from students, instructors, and scholars. In the second mode, the "Define" stage, data gathered from empathizing was analyzed and presented to our faculty members to discuss about expected learning outcomes and allowed them to propose courses and teaching styles. In the

third stage, “Ideate”, a focus group discussion was organized among representatives from instructors, students, administrators, scholars, and employers in order to create an innovative general education program in terms of its philosophy, goals, program structure, courses offered, as well as program, course, and classroom management. A revised general education was proposed in the fourth stage of “Prototype”. Three characteristics, namely, “Confidence”, “Social Mindfulness”, and “Lifelong Learning” were identified as desirable outcomes of the students. Many multi-disciplined courses were designed. Under the philosophy of “Freedom and Wisdom”, students would be able to choose more elective courses. Program of study would be individually designed. Team teaching and active learning approaches would also be emphasized. In the fifth stage of “Test”, the revised GE program was tested in 2018. The curriculum was redesigned based on feedback from students and instructors. It was found that engaging the perspective of the learner enabled exciting innovations designed with the students in mind. Another test was recently organized in 2019. We hope that this revised GE program could be used as a prototype in revising other programs in the university. However, there are still many challenges in managing this newly designed curriculum.

COFFEE BREAK: 10:45 – 11:15

KEYNOTE SESSION II: 11:15-12:00

Assessment, is it driving Learning Design?

Dr. Jeremy Pagram

Edith Cowan University

Abstract

While students tend to focus on, and be motivated by practical part of courses, teachers being accountable for student results will, as President Barak Obama put it, tend to “teach to the test” and make “education boring for kids”. Educators are accountable to society for the outcomes of the use of resources in education, in Australia for example society increasingly expects that students should demonstrate practical performance not just theoretical knowledge. Moreover, students are more likely to experience deep learning through complex performance. If tests designed to measure key learning in schools ignore some key areas because they are harder to measure and attention to those areas by teachers and schools is then reduced, then those

responsible for the tests bear some responsibility for that. This presentation asks the question. Is inappropriate assessment driving learning Design?

BUFFET LUNCH: 12:00 – 13:30 (Food Capital)

SESSION I: 13:30 – 15:30

Room: Galleria Ballroom

Session Chair: Lawrence G Gundersen, Jackson State Community College, USA

Impact of pedagogical space design on collaborative learning in tertiary education

Edmond WM Lam

SPEED, PolyU, Hong Kong

Irene Wong

BRE, PolyU, Hong Kong

Daniel W.M. Chan

The Hong Kong Polytechnic University, Hong Kong

Abstract

Traditional teaching is teacher-centered focusing primarily on one-way delivery of information to students. The integration of communication and information technologies has induced pedagogical changes. The teaching mode has shifted from "passing expertise knowledge to students" to "active and collaborative learning", which has brought about changes in learning space design. Traditional classroom design focuses on teachers' performance with students sitting in rows facing the lectern, which cannot support collaborative learning. New learning space design should be student-orientated to facilitate group activities. Facilities, such as IT/AV provisions, should be able to encourage learner participation. Learning space configuration should also allow flexibility in adapting to different uses, and modular furniture should be used to facilitate quick reconfiguration in enhancing group activities. The Hong Kong Polytechnic University has carried out refurbishment work on obsolete classrooms and lecture theatres involving updating, upgrading and creating innovative learning spaces and facilities with the aim of improving the learning environment. Conventional classrooms and lecture theatres were renovated into modern and technology-enhanced teaching rooms to

facilitate active learning. Questionnaire surveys were conducted to review the performance of the renovated learning spaces. This paper summarizes the survey findings and draws conclusions on how space and furniture design can facilitate collaborative learning in tertiary education. The six components include Modern Technologies, Facilitation for Group Discussion, Multifunction, User-friendliness, Comfortability, and Manageable and Pleasant Environment which should be coordinated to create a comfortable and pleasant interior learning environment as vital design considerations.

Real-World Learning with Augmented Reality

David Watson

Educational Development Centre,

The Hong Kong Polytechnic University, Hong Kong

Chloe Lau

School of Hotel & Tourism Management, PolyU, Hong Kong

Abstract

BACKGROUND

Through real-world learning of a special event project, 48 students enrolled are given the opportunities to plan, organise, manage, and evaluate a real international conference with over 400 delegates - the Third Global Tourism and Hospitality Conference (3rd GTHC). Taking the conference theme - innovation, research, and education, students designed innovative activities for the conference by applying current Augmented Reality (AR) technologies. Through the experiential learning cycle, students learned AR theories, pedagogy and concepts, developed their objectives, created and constructed AR content, and captured feedback. After reflection, students applied what they learned from the special event project to their real employment as conference planners of the eLearning Forum Asia (eLFA) 2017 which was attended by 250 international delegates. In addition to developing employability, the overarching goal of the project is to develop students who are; critical thinkers, effective communicators, innovative problem solvers, lifelong learners and ethical leaders.

APPROACH & METHODS

Experiential learning has long been an approach used in hospitality and tourism. Kolb's (1984) cycle starts from abstract conceptualisation to active experimentation, turning into concrete experience. Through reflective observation we are led back to rethinking abstract concepts – central to learning through work integrated education (Dev, 1990; Whitney, 1984). The SAMR Model, introduced by Puentedura (2009) introduces how technology provides opportunity to

transform learning through different levels of modification and activity re-design, with the ultimate goal being 'redefinition' of tasks "that have been previously inconceivable without the technology."

A quantitative approach was adopted in this study. A post-workshop questionnaire was used to understand students' learning experience on developing Augmented Reality (AR) content, whilst another survey was conducted during the two conferences in which stakeholders were surveyed on their experience of AR in this context.

IMPACT & RESULTS

During the face-to-face workshop and via the online course environment, students were introduced to 3 case studies of applying AR to hospitality& tourism, retail and entertainment industries. For each case study, students analysed the link between the company background, the need for adopting AR technology, the solutions identified and the end-product of its successful adoption, before reflecting on these cases to adopt key points for their own conference planning. A total of 48 special event project students attended the Face-to-face (f2f) Workshop, entitled; how can conferences use AR to engage with their stakeholders more effectively? With a response rate of 81%, mean evaluation results (rating scale; 1=strongly disagree to 5=strongly agree) included: The format of the workshop is suitable (M=4.13) The overall learning experience of the workshop is good (4.16) The workshop is useful for conference planning (4.11) I am likely to use AR in the future (4.18) You would recommend the use of AR to a friend/colleague (4.23) Data captured from 202 attendees from both 3rd GTHC and eLFA 2017 conference delegates included: It is an interesting experience in using the AR conference apps (M=4.19) It stimulates audio-visual appeal (4.14) I predict that I would use AR conference apps in future conferences (4.13) The AR conference apps is clear and understandable (4.06) Using AR makes me better informed about conference-related information (4.06) It utilises curiosity to draw learner/users into the activity (4.06) IV.

DISCUSSION

Via the experiential learning cycle, students continuously reflect on their experiences to identify areas of improvement and achievable actions, whilst face-to-face workshops are designed to ensure a balance between active and constructivist learning, supplemented with discussion and 'free roaming.' Rather than a traditional instructor-led approach, AR content is positioned around the learning environment. Utilising all four walls, the conventional classroom is transformed into a 360 degree interactive learning tool, encouraging participants to explore and interact with different multimedia learning content. Self-paced free roaming at key intervals allows students to absorb digital content which is overlaid onto the real world,

providing a more transformational experience before coming together again as a group to discuss constructed knowledge in peer-to-peer interaction.

Amplifying Indigenous Healthcare in Rural Guatemala

Frederic B Lim

Healer2Healer.org, USA

Abstract

Basic acupuncture protocols used for fertility issues and PTSD are becoming mainstream treatments in developed countries, but in the Highlands of Guatemala the practice of training small groups of indigenous midwives in complementary treatments to increase the quality of lives of patients--who would not have received much treatment--is taking root. “Traditional midwives are estimated to attend 30 percent of births in urban areas and between 50 percent and 75 percent of the births in rural areas, where they are often the only providers available” (PAHO 1999; personal communication MOH 2004). In fact a small, grassroots NGO is has been providing training for these groups of women and fundraising for their supplies since 2010 so that more rural patients are treated. To fully understand the scope of this humanitarian support we must know more of the experiences of the midwives to scale this type of training in rural locations worldwide. Reflecting on their individualized treatments of over 300 patients with basic protocols that complement their own ancestral healing practices (fiscal year 2017-2018), this paper suggests Tutorial Relationships to amplify trainings. Despite living in agrarian surroundings, these indigenous women group leaders are bilingual and communicate digitally as 21-Century cyber citizens to the extent that their patient data is cloud-stored and can be analyzed by health providers to plan future clinic trainings.

Basalenial (Milenia Waste Bank) as CTL learning model for elementary school students to improve environmental education quality

Siti Nur Sa'adah

Semarang State University, Indonesia

Abstract

Garbage is still a problem in Indonesia. Many things cause careless waste disposal due to increasing population, urbanization, people's lifestyles, and technological advancements (Trihadiningrum, 2010). Trash statistics in Indonesia in 2014 noted that Indonesia occupied the second largest plastic waste producing country in the world after China (Geotimes, 10 July 2015). 2013 curriculum as a reference for the learning process in educational units, has launched Character Education Strengthening (PPK). However, this was felt to be ineffective in providing environmental education related to waste management. Therefore, the author intends to implement "BASALENIAL (MILENIAL WASTE BANK) AS A CTL LEARNING MODEL FOR ELEMENTARY SCHOOL STUDENTS TO IMPROVE ENVIRONMENTAL EDUCATION QUALITY". It aims to provide environmental education related to waste management for elementary school students to have awareness to manage waste and maintain environmental sustainability. The literature study method that the author uses is sourced from print media such as books and electronic media namely the internet such as journals and other relevant research results. BASALENIAL is a CTL (Contextual Teaching and Learning) learning model that has a flow of students collecting rubbish, saving rubbish at school, making handicrafts from garbage, selling works via online / social media, and saving money from sales for educational purposes. Through BASALENIAL can grow the character of students that is concerned with waste, creative in making handicrafts from garbage, and discipline in saving garbage to preserve the environment. In addition, students can apply the 3R namely reuse, reduce, and recycle which will become the habit of students when they grow up. So that waste management is more structured and the surrounding environment becomes sustainable.

Re-thinking Learning Design: Re-conceptualising the role of the Learning Designer in pre-service teacher preparation through a design-led approach

Steven Kickbusch

Queensland University of Technology, Australia

Natalie Wright

Queensland University of Technology, Australia

Jason Sternberg

Queensland University of Technology, Australia

Les Dawes

Queensland University of Technology, Australia

Abstract

The acquisition of twenty-first century skills by students is widely regarded as a determinant of future success. Design thinking approaches have been espoused as a contemporary means for acquisition of these twenty-first century skills. However, there has been limited research into the use of design thinking as a pedagogical approach to assist pre-service teachers in student-centred curriculum design and delivery. Research is also limited regarding the role of the learning designer as an external facilitator contributing to the development of pre-service teachers' own classroom practices for educational transformation. A comprehensive literature review reveals that learning design remains quite misunderstood, misaligned with the practices of instructional design, and confused by the exponential growth of educational technologies. This study proposes a new area of research which investigates utilising design thinking as a framework for learning designers in the preparation of pre-service teachers. It combines knowledge around learning design, teacher self-efficacy and design-led educational innovation, to formulate a conceptual model for learning designers to facilitate the development of design thinking processes, skills and mindsets in pre-service teachers to improve students' acquisition of twenty-first century skills. The model will transform pre-service teacher education by re-framing their understanding of their own classroom behaviour to enable a more student-centred approach towards curriculum design. Consequently, it is anticipated this will improve student engagement in the classroom and encourage in-service teachers to explore their own curriculum by engaging in design thinking as a framework for education. This paper introduces this model which prioritises design and provides further understanding of the principal role of the learning designer in facilitating the development of student-centred practices by educators. In addition, it identifies new avenues for interrelated, future research that will lead to deeper insights and broader understanding of this emergent research area.

COFFEE BREAK: 15:30 – 16:00

POSTER SESSION: 15:30 – 16:00

Diversification of study materials with regard to student's abilities

Zuzana Václavíková

University of Ostrava, Czech Republic

Abstract

Although in the Czech Republic the education of gifted pupils and pupils with special needs is enshrined in legislation, the real situation is that common classes are a mixture of 30 students with different abilities with respect to inclusion. One of the potential ways of how to adapt educational methods to different types of students is the diversification of study materials with regards to the student's abilities. At least we are talking about three groups of students - gifted, average and special needs students. Of course, we are faced with the twice exceptional students, i. e. the gifted children who give evidence of one or more disabilities (for example SpLD, ADHD, speech and language disorders, emotional/behavioral disorders and so on). In our research the main outcomes were two types of learning materials for secondary school children in four subjects – physics, chemistry, geography and biology. The target groups were children at secondary school (ISCED 2A). So the learning materials were prepared for two different ages, for one topic in each subject and age group with regards to the curriculum. Learning materials are based on the inquiry-based learning method. We tested the quality of outcomes using eye-trackers. First of all, the eye-tracker measurement gave us feedback on the compilation of work materials. But it has also provided us with valuable information on how the pupil is able to concentrate, how he / she is solving the tasks, and whether he / she monitors the whole assignment. We also gathered information on how the twice exceptional students work and how best to compile tasks for each group. We are now at the end of the research and supportive methodologies are being developed for educators to instruct how to apply the developed learning materials in practice. There is currently no functional tool in the Czech Republic to identify gifted or special needs students. Identification is based on optional requests by parents for pedagogical-psychological testing, which is often a very long process. The classification of students into the groups is usually determined by the teacher. Due to this, we

are also preparing methodologies aimed at describing the target groups of the pupils, which will provide teachers information about the characteristic features of such students and about the specifics of their educational requirements.

Corpus-based Evaluation of the Global Competence for Computer-assisted Studying Abroad

Katsunori Kotani

Kansai Gaidai University, Japan

Mayumi Uchida

Kansai Gaidai University, Japan

Abstract

This study examines a method for measuring the probability of acquiring the study-abroad outcome. The current method uses support vector machines to classify students, who had studied abroad in English- or Chinese-speaking countries or regions, into three classes based on their answers to multiple-choice and open-ended questions on their study-abroad experiences. Experimental results show that the support vector regression method outperformed the majority-class baseline in measuring the study-abroad outcome. The results also reveal that the support vector regression method is sufficiently robust in handling class-imbalance data.

SESSION II: 16:00 – 18:00

Room: Galleria Ballroom

Session Chair: Steven Kickbusch, Queensland University of Technology, Australia

Fifth Generation Online Courses: Gaming, Access, and Portability

Lawrence G Gundersen

Jackson State Community College, USA

Abstract

In the current evolution of online courses and materials, critical attention must be applied to the gaming, access, and portability of the content. With large refugee populations displaced or on the move, with transient adult populations regularly moving for jobs, and with traditional college age populations increasingly not wanting to attend regular classes, online education, online courses, and online materials will only grow. In addition, students with disabling conditions must have access to online education, courses, and materials. Student's desire to be entertained in higher education courses and to be gamed into learning course content has grown and will continue to grow. So far, mainly the publishers have developed e-gaming content for their "course packs". This paper and presentation seek to demonstrate a model of course development to insure that newer online courses incorporate the critical modern pedagogical elements of gaming, access, and portability for student success.

Learning and Teaching in a digital age: using visual tools to support diverse classrooms

Xin Zhao

University of Sheffield, UK

Andrew Cox

University of Sheffield, UK

Abstract

Higher education in the UK has successfully attracted a large number of international students. According to UKCISA (2016), the total number of international students studying in the UK in the 2016-2017 academic year is 442,375, accounting for one-fifth of the student total. These international students are 'indispensable' for universities under the internationalisation era, as they bring invaluable social, cultural, and economic contributions to the universities, the local regions, and the host country. Despite their contributions, however, international students are reported to face many difficulties in their transition to the host culture, such as language barriers, low levels of academic engagement and a lack of integration with home students. This presents a pedagogical challenge for teachers in supporting diverse classrooms. Literature suggests that many international students who are accustomed to traditional teacher-centred teaching may struggle with a more student-centred dialogical approach, particularly in the context of multicultural group work. This may cause tension between home and international students and lead to a low level of student satisfaction on both sides (Dean, 2011). Recent developments in visual pedagogies have shown promising effects on assisting student learning, such as knowledge construction and collaborative working. This project investigates the use of visual tools, particularly cartoon-generating software, in facilitating student group discussions and learning reflections in a diverse classroom setting. Research suggests that cartoons – simple humorous drawings - as a visual tool can enhance student learning during classroom instructions as well as can create a positive learning environment for stimulating student imagination and creativity. However, as yet, not much research has been done into the use of cartoons to facilitate multicultural group discussions and learning reflections. Drawing cartoons students can express ideas quickly, in a powerful way, without making strong demands on their English. This research uses a case of a classroom of 70 postgraduate students in a British university, 90% of whom are overseas students who speak English as a second language. Language barriers and lack of group work experience of international students present pedagogical challenges for inclusive teaching, which is consistent with the evidence from the literature. Student participants attended a traditional style lecture, followed by an individual task where they reflect on the lecture content and use the available cartoon-

generating software to create a story to illustrate their understanding of the topic. Then, they formed small groups and share their stories with other group members. Visual data (cartoons) and student feedback were collected for data analysis. The research outcomes include an enhanced understanding of the use of visual tools for group discussions and learning reflections.

Enabling students to learn hands-on technical skills using Makerspace in a Higher Education academic library.

VanRensburg Henriette

University of Southern Queensland, Australia

Stephanie Piper

University of Southern Queensland, Australia

Abstract

This paper includes a snapshot of the operation, projects and offerings of an academic library makerspace in a rural university in Queensland, Australia. Makerspaces are areas or spaces where making and prototyping take place. Gerstein (2014, n.p.) sees a Makerspace not only as a space itself, but describes it "as a mindset that can be and should be taught". They are physical locations that provide expensive tooling and equipment to build, make, repair and create objects. Halverson and Sheridan (2014) emphasised the emerging role of making in education. Makerspaces offer more than just an environment to create artefacts, it is rather a physical location where lecturers, researchers and students can get together "to share resources and knowledge, work on projects, network, and build" (Educause, 2013, n.p.). They are increasingly seen as new offerings for libraries to broaden their impact in knowledge sharing in the local community. Although there is a push to include Makerspaces in universities, little empirical evidence is available about the experience of establishing Makerspaces on academic campuses. The concept of makerspaces in education is embedded in theory and research. Constructivism is the theory of "learning based on experience and observation. Through experience, and reflecting on these experiences, individuals construct their knowledge and understanding of the world" (Roffey, Sverko & Therien, 2016; Papert, 1993). This medium-sized regional university fosters a values driven culture - one that is built around relationships and community, mutual respect, diversity and inclusion, and a strong commitment to ethics and integrity, collaboration, creativity and innovation. The university's education experience plan is designed to assist the university to progress from strategic commitment to action in areas that improve the educational experience (University of Southern Queensland, 2019).

Roffey (2019, n.p.) describes a Makerspace in an academic setting as a ”collaborative digital space for educators to explore how to create and use makerspaces in their own environments and will help to transform pedagogies of individual educators through immersion in the context and the support of a community of practice”. At this university, there was a need to provide a working room, equipment and tooling in the library for technological experimentation; with the aim to increase self-directed learing to creative individuals and creative teams. Students do not just want to attend lectures, they want to work on personal projects, explore, create and enjoy time with their friends and meet new people (Dougherty, 2013). Thompson (2014) argues that Makerspaces for education focus on the benefit of engaging users in creative, higher-order problem solving thorough hands-on design, construction and iteration. Design and creativity are making their way to the forefront of educational considerations, and Makerspaces can address the needs of the future (NMC Horizon Report, 2015). With the pace of current technologies, there is a shift in what type of skillsets have real, applicable value. Makerspaces are a great way for students to gain future skills, and project-based learning through kit workshops can catalyse student interest and allow participants to engage in hands-on learning experience. As detailed by Curry (2017), there is a heavy emphasis on the importance of experiential student-orientated learning and the division between knowledge and action in academic library Makerspaces. Furthermore, Halverson and Sheridan (2014) have found that Maker-based instruction has emerged as a largely untapped approach to promoting student learning and engagement. Blikstein and Krannich (2017, p. 182) argue the case for project-based learning in Makerspaces with the statement “Digital fabrication and ‘making’ could be an unprecedented opportunity for educators to advance a progressive educational agenda in which project-based, interest-driven, student-centred learning are at the centre stage of students’ educational experiences”. The university’s academic library Makerspace is a community space for all students and staff to come together to make and create. This is the first Makerspace in the region. While many universities have engineering or product design facilities similar to Makerspaces, an academic library based makerspace does not restrict students by discipline and can encourage cross-faculty collaboration. The Makerspace can be used for class projects, student clubs, to test an idea you might have or just for having fun. Currently, the Makerspace has a 3D Printer, a badge maker, hand tooling, a laser cutter, craft materials, consumables and much more. Within the academic library Makerspace, students can access a range of tooling and equipment from jeweler’s screwdrivers to 3d printing and 3d scanning. The space is a place for hands-on activities including coursework projects, repair and hardware entrepreneurship. In practice, a student studying human anatomy and physiology

might make realistic models for hands-on learning, and an engineering student could complete the Warman challenge robotics assignment, where students are required to build a robot to undertake real world challenges. Biomedical lecturers working with the Makerspace have created 'human tissue' like scaffolds for seeding cells as part of simulated tissue engineering activities, and created universal microscope phone mounts for student microscopy photography. The Makerspace has a focus on breaking down barriers to entry, including offering two free 3d prints under 300 grams to get started, offering swipe access outside of hours for students. The university also wanted to offer their mostly online students an equal experience, similar to the on-campus student experience. As part of a Student Amenity Fee-Funded grant, the maker kits project offers four different types of kits over the academic year: Arduino and sensors, wearable technology, obstacle avoiding robots and home automation. This is a great opportunity to learn essential key maker skills in electronics, microcontrollers and coding. These free kits can be mailed out to any enrolled online student residing in Australia without any charge to the student. The program has two aims: 1) To support distance education, online and on-campus students who are not able to make use of the community, equipment and learning opportunities that the Library Makerspace provides. 2) To alleviate the financial burden of purchasing kit materials for extracurricular learning opportunities. Incurring the cost of kit-based workshops can restrict students from low socio-economic backgrounds from undertaking extracurricular professional development and recreational learning activities. As part of this program, students who receive a kit will be surveyed after each workshop. Project-based learning through kit workshops can catalyse student interest and allow participants to engage in hands-on learning experience. The Makerspace is open for all staff and students regardless of course or study mode, and can be used for course-work linked or personal projects and activities. The outcomes of an on-campus Makerspace include enabling students to build competency with hands-on digital fabrication skills, troubleshooting and more. Regular 3D printing, Arduino, robotics, website building and 3d modelling courses continue to build capacity in students and staff. While the makerspace is still new at this academic library, the service is already having a profound impact on student learning. Not only does the Makerspace offer a beneficial service for on-campus students, the maker kits projects is an enabler for online and distance students. In this paper the researchers reflect on the potential pedagogical impacts of Makerspaces on teaching and learning. According to constructionism, the best learning take place when students are making concrete artefacts through real life learning and authentic opportunities. In educational settings, the movement of learning through designing and sharing within collaborative settings is fundamental.

Although making and creating is not new, Makerspaces are a new way of saving users money on tooling and equipment and continues the tradition of building a circular economy for which libraries are famous. Makerspace can be used by all educators and students on any budget, and it is a creative and collaborative way to transform teaching and learning. Often a local community of practice with knowledge regarding hands-on and new digital skills is built around this, with many beneficial and positive effects.

Capturing the method of arriving at an answer choice for an MCQ to generate new insights for learning design.

Umesh Kumar G L Gandla laddagiri

XAMPLAY, India

Abstract

MCQs are a very common question type used in tests to evaluate the learning and understanding of a large group of students. There are only three ways a student can answer an Multiple Choice Question (MCQ). 1st through prior knowledge / applying a formuale. 2nd through the process of elimination from the available answer options. 3rd through random picking. Each of these approaches taken by a student has a specific reason. The purpose of this research is to evaluate if capturing this objective data of a students approach to answer a MCQ question will be helpful for learning design. The study conducted found that we could derive very fresh insights that will help the teacher to plan their further activities to enhance students learning. We also could at the level of a cohort understand the answering approaches and accuracy to determine the next course of action to enhance cohorts learning.

Teaching the way they learn: Using Moodle to differentiate instruction

Pearl Subban

Monash University, Australia

Abstract

Many educational institutions are utilising Moodle as a learning platform, drawing on its wide and varied tools and resources to cater for student needs. This paper examines how Moodle can be used to effectively differentiate instruction in both synchronous and asynchronous modes, thereby offering effective learning opportunities for students. Facilitated initially by a scoping search, the presentation draws on current research in the field, and applicable methods, creating both a research basis and a range of strategies that could be used by educators. With classrooms veering toward the digital mode, and with student attention being focused in the online learning space, it appears reasonable to investigate best practice within this genre of learning and teaching. The presentation is aimed at educators who create and utilise learning and teaching content in Moodle, but will target the construction of such activities, in an attempt to reach more learners. Differentiation within this space is integral, as it reflects an accommodation of learning styles in the digital age.

An investigation of design principles for the development of e-Learning packages

Soofrina Mubarak

Dyslexia Association of Singapore, Singapore

Abstract

The humble in-house attempt to develop and trial e-learning content for teenagers as well as for teachers has brought many key points to light for consideration and discussion, which this presentation will shed light on. This presentation will explore these key questions: 1) What is the difference between interaction and interactivity in the e-learning environment? 2) What are the key elements that construct an engaging and interactive e-learning environment that foster and support learning? 3) How do e-learners perceive interaction and interactivity in the e-learning environment? 4) What are the key decision components that influence the design of interactivity in the e-learning environment? Along which, instructional design principles and e-learning practices will be explored, with reference to recent experiments of e-learning courses at the Dyslexia Association of Singapore. Specific characteristics of e-learners alongside recommendations by experts will also be shared. e-Learning does not exist without dispute and disagreement. Opponents argue that limitations such as requiring more work and effort,

taking a longer time for conversion, impersonal user interface, challenges in meeting technical requirements, resistance to changes,information overload and development costs are some of the factors that discourage the adoption of e-learning (Horton, 2000; and Beer, 2000). Yet, the number of e-learning content providers keeps increasing to the point that providing e-learning courses begins to look trendy for many organisations. It is also common that when one thinks of e-learning, the first thing that comes to mind is technology. Specifically, the emphasis on the authoring tool used (Adobe Captivate, Macromedia Flash etc); or hardware (laptops, iPads etc); or the learning management systems (LMS). What isn't readily spoken about are the finer but most crucial components of e-learning, such as instructional design approaches, user interface designs, interaction design and so on. In the implementation of e-learning in an educational organisation, one of the key factors to consider is the characteristics of the end users, in particular, their perceptions, preferences and experiences in the e-learning course in certain domain specific areas such as Gagne's types of learning outcomes, interactive agents (learner-learner interaction; learner-instructor interaction; learner-content interaction; learner-interface interaction), content delivery, collaboration, communication, evaluation, cognitive, performance and technical support and community of practice. A smart and effective eLearning program would have to incorporate all these tools and have them available online so they are easily accessible on the go. If e-learning can do all that and combine the latest of technological tools with customizability, there seems to be no reason that it could not take over the education system in the new world. But, does it have the potential to phase out instructor-led teaching? Now that's a question only the contemporary student can answer!

2nd August 2019

Venue: Grand Copthorne Waterfront Singapore Level 3 (Galleria Ballroom)

WORKSHOP PART 1 'Educational Technologies for Learning Design': 09:00 – 10:00

Introduction

By: Ms. Zina Cordery and Dr. Hendrati Nastiti (Edith Cowan University)

Creativity, Collaboration, Critical thinking and Communication, which is also known as the 4 Cs, are vital for the 21st-century learner, according to many leading world authorities in education, business and policy. Education and industry leaders are calling for their staff to develop these key skills, which along with digital intelligence, encourage them to be life-long learners and valuable assets to their businesses.

Educational technologies refer to various technologies that are used to facilitate learning. Innovative use of educational technologies in training programs motivates and engages participants in a transformative learning experience. During these workshops we will look at the implementation of the 4Cs framework for training purposes and engage first-hand the use of Educational Technologies to design innovative and authentic learning experience.

COFFEE BREAK: 10:00 – 10:30

WORKSHOP PART 2 'Educational Technologies for Learning Design': 10:30 – 12:00

'Innovating business, industry and education with Immersive Technologies'

By: Ms. Zina Cordery (Edith Cowan University)

This talk will look at the latest advances in immersive technologies, how they are being developed and implemented across areas of business, enterprise, health, science and education. You will learn about Virtual Reality, Augmented Reality and Mixed Reality, the latest advances in the development of these technologies, and see use cases of how these technologies

are being used in a range of industries to solve problems and support their industries. We will also take a look at the potential for growth and innovation, today and in the future.

BUFFET LUNCH: 12:00 – 13:30 (Food Capital)

WORKSHOP PART 3 'Educational Technologies for Learning Design': 13:30 – 15:00

'One Question Interview App'

By: Dr. Barnard Clarkson (Edith Cowan University)

Imagine an interview app for which you write only one question, that needs only a prompting role by the interviewer, that gives your subject a numerical score as soon as the brief interview is over and also provides triangulating high-quality data. We like to argue that this is the simplest interview tool to measure what change is happening and why.
The Experience of Change (EoC) interview app elegantly gathers the feelings of your research participants in two ways, namely it generates a number representing their change score, and also records their views in rich qualitative detail.

COFFEE BREAK: 15:00 – 15:30

WORKSHOP PART 4 'Educational Technologies for Learning Design': 15:30 – 17:00

'The Second Language Teaching Tool'

Dr. Alistair Campbell, Edith Cowan University, Australia

This project originally aimed to connect Aboriginal children, their community and school to local Aboriginal language and culture through the innovative use of technology, while simultaneously developing skills in standard English. An interactive digital tool known as CulturePad was developed running upon Apple iPad hardware to promote local language, English and digital literacy skills without the need for internet access. Oral and written language was captured and recorded locally and made readily shareable within and between communities. Findings have shown CulturePad sustains the interest and engagement of

Aboriginal children, teachers and community-based Aboriginal educators in oral and written language development. The CulturePad app now in its fifth year continues to be developed and has become a refined software base for language learning.

Because this app only acts as a container for contents, it can be used for any languages to any levels of learning. The workshop looks at the project and the potential both for Aboriginal language learning and language learning more generally. A number of iPads with app installed will be provided for participants to use and explore the potential of the app. Participants with an iPad are advised to come with Filemaker GO 18 app (free) installed so they can be provided with CulturePad app.

SLDT 2019 CLOSING: 17:00 – 17:30

Dr. Jeremy Pagram

Edith Cowan University

END OF CONFERENCE

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