

**ADEPT ELITE E-BOOK SERIES**

*Engaging Learners, Innovating Learning Environments*

**TALENTs**  
**Behind Innovative Teaching:**  
Blended Learning Strategies  
from Teaching and Learning Agents of MMU

Editor: Prof. Dr. Neo Mai

With contributions from the Teaching And Learning Agents  
(TALENTs) of MMU

And

Foreword by Prof. Dr. Grainne Conole

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## Foreword



**Prof. Dr. Grainne Conole**

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Designing for Learning in an Open World

Learning Design in Practice: Fostering Different Pedagogical Approaches

At the end of 2016, about 3.5 billion individuals—nearly one-half of the world’s population—were using the Internet, a threefold increase in 10 years. Increasingly many educators believe that technology is a powerful tool for transforming learning. Technology can enable personalised learning and experiences that are more engaging and relevant to students’ individual needs. For example technology can enable students to engage with real-world challenges and project-based learning. It can also provide students with access to learning interventions beyond the classroom, such as museums and libraries.

The educational landscape is changing as a result of digital technologies. The importance of data security and digital citizenship is recognised and the need to teach 21<sup>st</sup> Century competencies and expertise to enable students to become competent users of technologies, aware of the benefits and potential dangers. These include critical thinking, complex problem solving, collaboration and use of multimedia communication. In addition, students need to take control of their learning, to meta-reflect and to become lifelong learners. The increasing potential for connectivity beyond the classroom through digital technologies means that it is important to teach students to become responsible digital citizens.

In terms of the future issues facing education that designers of learning opportunities need to be cognizant of include:

- The changing nature of work and the fact that in the future it is likely that many people will have multiple careers.
- The need to take account of a spectrum of learners; from the demands of the ‘now’ generation who want flexible and adaptive learning opportunities

personalized to their individual needs through to those who are learning for leisure reasons rather than for work purposes.

- The emergence of new forms of accreditation, such as digital badges, certificate of participation, micro-credentials, and most recently the potential of blockchain technology to enable learners to document and record their learning across different contexts.

This has implications for how teaching and learning is adapting and needs to change. Teachers need to help students develop higher order skills such as creativity, critical thinking, communication and collaboration. They need to help learners develop lifelong learning habits. Technologies are increasingly important and teachers need to develop the digital literacy skills to harness them appropriately in their teaching. Finally, they need to find ways to motivate their learners by providing experiential, authentic and challenging learning experiences. 21<sup>st</sup> Century learning means that learners now have more choice on how and what to learn; we are preparing them for an uncertain future to do jobs that don't even exist and the likelihood that they will have multiple careers. As with teachers, they need to know how to use technologies effectively and more importantly how to use them for academic purposes. They need to have ownership of their learning and be able to document and curate demonstration of achievement of learning outcomes.

Learners are increasingly demanding, and want personalized and flexible learning opportunities and have been referred to as the I Want What I Want When I Want It (IWWIWWIWI) generation. Learners increasingly want bite size chunks of learning. They may choose to pay for: i) quality assured learning materials, ii) learning support, iii) a guided learning pathway, or iv) accreditation. Different learners will have different needs and will therefore choose different components. In addition, learners are increasingly mixing formal educational offerings with free materials and courses, available through Open Educational Resources (OER) and Massive Open Online Courses (MOOCs). As a result new forms of recognition of learning and accreditation are emerging, such as digital badges, certificates of participation/completion, and Accreditation of Prior Learning (APEL).

We are operating in a constantly changing techno-ecosystem with which we interact and co-evolve. The digital society in which we live, learn and work has led to fundamental changes, which means that we need to help students be critically reflective, lifelong learners. Some of the key technologies and their uses include: the use of mobile devices, supplementing formal education with Open Educational Resources and Massive Open Online Courses, flipping the classroom, adopting a blended learning approach, connecting to the wider global community through social media, use of 3D printing, augmented and virtual reality, new approaches to designing learning and use of learning analytics to enable teachers to see what students are doing and to enable students to better manage their learning experience.

There are a number of reasons for using technology in the classroom. Firstly, technology driven education increases the learning and retention rates of today's learners, who have grown up with digital technologies. Secondly, digital technologies enable more interaction and participation engagement with rich multimedia content and a variety of ways to communicate and collaborate with peers, teachers and the broader

community. Therefore, technology allows global learning, beyond the classroom. Thirdly, digital technologies mean that students can engage with content outside of the classroom, for example by enabling them to watch and rewatch lectures. In addition, increasingly podcasts and classroom gaming will be part of the learning process. Fourthly, there is a plethora of free digital technologies, which can be used to personalise the learning experience.

This foreword introduces the chapters included in this book. The chapters provide a useful overview of the ways in which MMU staff are designing and delivering courses. They are the result of the design of learning interventions by MMU staff, who all attended the 7Cs of Learning Design framework which I ran at MMU in August 2017. The framework aims to help practitioners make pedagogically informed design decisions that make appropriate use of digital technologies, and these chapters represent a rich set of examples of the different approaches being used. I hope you enjoy reading them.

# Introduction

In today's world, the traditional chalk and talk method of lecturing is no longer conducive to learning. Interaction, collaboration and teamwork are integral in order to create effective learning environments. We are going beyond the classroom to impart knowledge to our students, the Generation Zs, known for googling information and short attention spans. In order to address this, educators all around the world are challenged to find innovative and engaging approaches in order to interact with their students.

In this book, *“TALENTs Behind Innovative Teaching: Blended Learning Strategies from MMU's Teaching and Learning Agents”*, academics and blended learning trainers from all MMU faculties present their strategies on engaging their students. Written by ADEPT's Teaching and Learning Agents (TALENTs), academic staff who conduct Blended Learning trainings for the University, and are the Blended Learning Champions in their respective faculties, these chapters showcase their work in their classes in bringing blended learning into the curriculum and how these approaches have made their classes more interesting.

In *“Engaging learners in a constructivist-based blended learning classroom: The EQUAD Framework”*, I present and share the EQUAD blended learning framework for creating constructivist-based activities. In *“Academic Blogging: Using Blogs in the Classroom for Documentation, Reflection and Articulation of Knowledge”*, Ms. Heidi Tan showcases her work in class using blogs to help students curate their knowledge and document their progress. Dr. Lee's *“Goodbye Class Cancellation via Online Class”* presents tools that can be used to create online classes when lecturers' schedules conflict.

Ms. Diyanah Yusoh and Dr. Gan's chapter, *“WOWing the 21st-century tertiary students”* present their WOW framework for engaging students in class, which are adapted and used in their successful WOW workshops, and Dr. Shima's, *“The effectiveness of e-Learning Tools in Computer Programming Subject”* chapter demonstrates how blended e-learning tools can help to inject novelty in studying computer programming subjects. And Ms. Fathiha from the Faculty of Law posits a very interesting suggestion to law educators to use blended learning strategies in their courses, with her chapter on *“Blended Learning in Law School: Reality or Myth?”*.

In *“Enhancing instrumental understanding and conceptual knowledge in Mathematics through computer-assisted learning”*, Ms. Thong Li Wah presents the use of computer-assisted learning methods in teaching Mathematics in Engineering, and in Dr. Jinghong Low's chapter, *“Using quiz-based apps to stimulate higher order thinking in a management course”*, gamification strategies are explored. Dr. Ian Chai's chapter on *“Before Blended Learning: Lively Teaching Suggestions”* will give readers some tips on how to make their lectures more lively, especially when teaching IT subjects.

In Nazirah Mat Sin's chapter on *“Emerging Technologies in Blended Learning Environment: A case study in Interface Programming and Layout class”*, a variety of educational apps used in her class is presented and showcased. And finally, Raeidah Ariff's chapter, *“Blended Learning as the Linchpin to Innovative Teaching in*

*University*", suggests combining the RASE (Resources, Activities, Supports and Evaluation) BL framework and Process Approach into teaching the challenging skill, academic writing, for the Applied Communications faculty.

It is hoped that these chapters will provide stimulating reflections and ideas to other educators who are looking to start using blended learning in their own courses, and also for those who seek more exposure in using Web 2.0 tools. Regardless of the drive and motivation to read this e-book, I hope that reading this will inspire you to innovate and to create engaging classes for you and your students.

Happy reading and enjoy!

Prof. Dr. Neo Mai  
Editor  
Director, ADEPT  
July 2018

# 1

## **Engaging learners in a constructivist-based blended learning classroom: The EQUAD Framework**

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**Professor Dr. Neo Mai** is the Director for Academic Development for Excellence in Programmes and Teaching (ADEPT) for Multimedia University, and Professor in the Faculty of Creative Multimedia, and the Institute for Digital Education and Learning (IDEAL). Prof. Mai is the Director of the award-winning MILE Research lab and co-Leader for the Multimedia University's Blended Learning Group. Prof. Mai's research interests are in the design of constructivist learning environments, and web-based education. She was the recipient of the 2014 Excellent Researcher Award, an AKEPT Certified Trainer for Interactive Lectures (Level 1, 2, 3), an HRDF certified trainer and a Certified Google Educator (Level 1) for Google Suites (GSuite) for Education. She has also developed the Blended Learning Framework (EQUAD), based on her 25 years of training and teaching, and bases her training sessions and seminars on it. Her past clients have included Telekom Malaysia, Ministry of Health, Accenture, Petronas Carigali, Tenaga Nasional, and more.

## Abstract

As the use of technology becomes more prevalent in classrooms, as per the Malaysian Blueprint 2015-2025, educators are faced with challenges to develop and create innovative and attention-grabbing classes to address the new needs of today's students. In doing so, many lecturers seek the use of Web 2.0 tools to support their teaching styles while keeping students motivated and engaged with the content. These blended learning tools help create a more dynamic and open learning environment, and consequently, produce a community of learners where students play an active role in their learning process, and lectures become facilitators, scaffolds, models, and mentors. In this chapter, a study utilising a blended learning framework (Engage, Enhance, Empower, and Enjoy, or the EQUAD) within a constructivist learning environment, for a postgraduate course, Learning Theories & Strategies, in the Faculty of Creative Multimedia, is presented. Results and feedback on this environment were positive, which provides a very encouraging outlook on the use of the EQUAD framework.

**Keywords:** *EQUAD, constructivist, FCM, Web 2.0, learning theories*

## Introduction

Conventional teaching methods of using “chalk and talk” passive teaching are now being replaced with more technology-support and student-centred approaches. Such approaches would involve placing the loci of focus on the students to allow them control over their learning goals, thus being responsible and accountable for their learning process (Baeten, Kyndt, Struyven & Dochy, 2010; Leow, Neo & Hew, 2016). Alfassi (2004) suggests 4 categories of student-centred environments, as proposed by the American Psychological Association (APA) Board of Educational Affairs which are: 1) Developing increase awareness on the thinking and learning processes among students; 2) Increasing the motivation and attentiveness of students in their courses; 3) Creating a sociable and collaborative environment for them to interact with their peers and lecturers; and 4) Allowing individual learner competencies to be incorporated into the learning environment. Thus, these cognitive, affective and social factors combined create a conducive e-learning environment that is:

1. Learner-focused where active learning takes place
2. Enriching, where the learning is richer and more meaningful
3. Participatory, where the teachers work together with students to achieve their learning goals and become members of a community of learners
4. Exciting, as students become responsible and accountable for their progress
5. Accessible, as learning and teaching can occur 24/7 online via the Web

Laurillard (2013) suggested that universities and the education process as a whole should change to incorporate the evolving student needs and the technological advancements, and for educators to modify their teaching styles to become more technologically supported. Learning has to become more relevant, authentic and more meaningful to the students (Ozverir, Herrington & Osam, 2016). As such blended learning is becoming a popular teaching strategy to deepen the interactions between teachers and students. However, to be effective, blended learning frameworks should involve the student, the teacher, the design, the content and the technical aspects to the learning (Malik, 2010), and where the students’ attitude towards environment would affect their satisfaction levels. Learners who develop positive human-computer interactions as well as relationships with their instructors would become more engaged and motivated to learn.

The Malaysian Government, like many countries in the world, is giving strong support to using technology for more blended teaching and learning strategies in the higher educational institutions (MOE, 2015). In particular, the National Agenda calls for the following:

1. To cultivate a creative and innovative use of ICT in teaching and learning strategies
2. Enhance the knowledge and skills of instructional design for the integration of ICT in teaching and learning
3. Develop and extend digital forms of teaching and learning materials, and promote collaborative partnerships among groups of experts in the development in resources.

(MOE, 2012)

As such, many educators are adopting student-centred and blended learning approaches to their teaching methods to allow students to have better engagement with the content (Garcia, Lopez, Molina Casas & Morales, 2016). ICT has been shown to mediate this process, to



transform many conventional ‘chalk-and-talk’ classrooms into more interactive and connective community of learners (Ozverir et. al, 2016), in order to cater to the current learning needs of today’s digital learners. Web technology and e-learning have evolved to become an enabling technology that allows students to become more involved in their learning process, and to create new and achievable learning goals, which they can share and collaborate on virtually (Chan, 2017). Blended learning has been shown to be an effective way to improve the student learning process as it is a combination of the best of face-to-face and e-learning practices to the advantage of the students (Garcia et.al, 2016; Leow & Neo, 2015; Johnson, Becker, Cummins, Estrada, Freeman & Hall, 2016). Asynchronous online access via the Internet now makes learning available outside of the classrooms, thus encouraging a more effective student learning process. This learning process now involves more active learning on the part of the student, placing the loci of control with them, and the web allows them to share and collaborate with their peers and teachers outside of the classroom walls (Chan, 2017).

Malaysia’s Education Blueprint (MOHE, 2015), has created the initiative for Malaysian educators to take advantage of blended learning processes and incorporate them in their teaching environments and to develop learning environments that would encourage more creativity and critical thinking among students while providing a collaborative and dynamic setting for them to thrive on. This initiative would also encourage educators to go beyond their comfort zone and lack of confidence in e-learning innovations and design teaching and learning methodologies that are engaging and effective, while not sacrificing their classroom time with them. The Multimedia University in Malaysia has echoed this initiative and introduced its i-University initiative that seeks to create technology-supported learning environments in the University that would be able to capture students’ learning experiences and to spearhead the blended teaching process.

### **Blended learning in MMU: The i-University Initiative**

In echoing the pursuit of more technology-based teaching and learning strategies in the classrooms, Multimedia University embarked on its Blended Learning approach to teaching and learning in 2015, with the appointment of Blended Learning Champions for each faculty to assist faculties in using Web 2.0 tools. This was then followed by the i-University initiative in 2016, where Blended Learning was one of the key pillars of change. In 2016, with the establishment of the Office of Academic Development for Excellence in Programmes and Teaching (ADEPT), these faculty-based Blended Learning Champions were upgraded to become Teaching and Learning Agents (TALENTs), and blended learning training sessions were conducted at University level to all MMU staff in all 3 campuses (Cyberjaya, Malacca, and Johor). In driving the blended learning program, the University’s definition of Blended Learning was used, which was,

*“Integrating online activities with face-to-face class teaching in a planned, pedagogical, and valuable manner” (MMU, 2015)*

With this definition in mind, the EQUAD framework was developed, where blended learning approaches could be incorporated in three areas: 1) In the instruction, 2) the learning environment, and 3) the class activities. Figure 1 illustrates the EQUAD Blended Learning Framework.



*Figure 1. The EQUAD framework for blended learning*

As shown in Figure 1, the EQUAD framework suggests the following:

1. **Engaging** students through group-based, collaborative and cooperative problem-solving and authentic activities, and project-based learning. Learning takes place interactively and on a social level.
2. **Enhancing** their learning by focusing on process and not content learning. Knowledge construction and transfer are embedded within a constructivist and student-centred learning environment where learners' prior experiences are utilised and built upon. This is further made possible with the 24/7 access to the Web as a source of information and resources for students.
3. **Empowering** their skills to think critically and creatively, strengthen their social interaction processes with their peers, articulate, communicate and reflect on their learning process and goals, and to cultivate leadership skills within the team, all of which are skills required for today's workforce.
4. **Enjoying** the process of learning through active participation, experiential learning and teamwork, creating ownership in their learning outcomes, all of which would increase motivation levels and higher levels of enthusiasm toward their classes.

The framework supports blended learning in that it allows lecturers the option to use a combination of face-to-face and/or online platforms as and when it is necessary, in accordance to the 30%-30%-40% breakdown of Lecturer-Online Learning-Class Activities of the University's Blended Learning contact hours ratio. In MMU, the Multimedia Learning System (MMLS) is the official LMS platform, but lecturers are allowed and encouraged to also use other online and web platforms wherever necessary. This flexibility has proven to be advantageous and supporting of innovative blended learning strategies. In particular, the Multimedia Integrated Learning Environment (MILE), which was developed from my TMRnD project, was used in tandem with the MMLS. The MILE is an e-learning platform that allowed lecturers to upload content and conduct flipped learning in the classroom, as students were able

to access the lecture notes at any time from any place, and provided a blog system for posting reflections and progress monitoring.

### **Blended learning with postgraduate students: The Learning Theories class**

In the Faculty of Creative Multimedia, the Masters of Multimedia (e-learning technologies), is a postgraduate program that develops and create educators in e-learning to learn to use emerging technologies for innovative teaching and training. One of the courses that students have to take is the Learning Theories & Strategies course, which provides them with background knowledge and fundamentals of learning theories, that will enable them to develop pedagogically sound e-learning applications and courseware. This e-learning program was one of the earliest implementers of the blended learning approach in MMU. Therefore, in this Learning Theories class, technology and constructivist-based teaching strategies were adopted in the development of the teaching designs (instruction, learning environment, and activities) of the course, in accordance with the EQUAD Framework (see Figure 1).

### **Learning Drivers**

The design of the class environment, from the instructions, the learning environment, and the activities, followed the components prescribed in the EQUAD framework. In particular, each of the framework's components was mapped as follows:

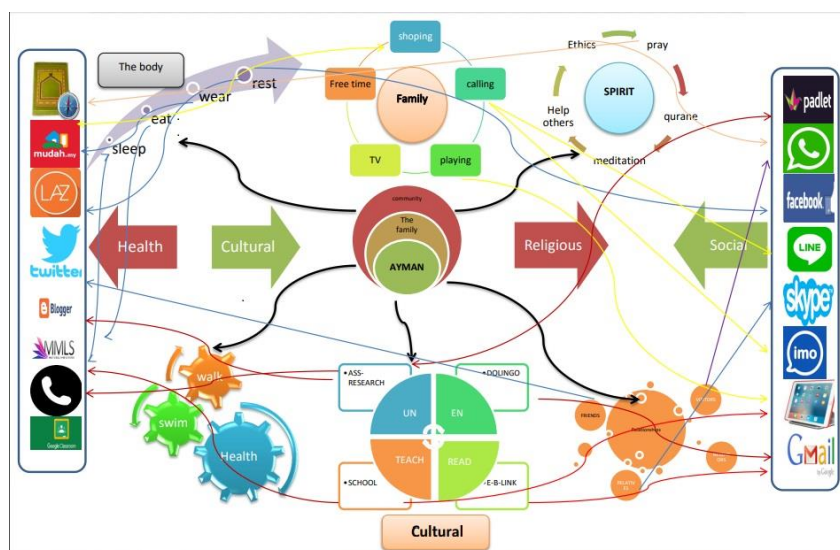
### **Engage**

Engagement in the course was created through the incorporation of a final project, a website on learning theories to be created by the students working collaboratively. As a group, they would be responsible for the delegation of tasks, content, visuals, and presentations of the website. This required them to work collaboratively in a group to solve this problem together as a team. In this class, the students used ConceptBoard to collaborate on the project and comment on each other's work online. Figure 2 shows the collaborative process of designing the website using Concept Board.

*Figure 2 Students collaborating to design the website using ConceptBoard*

## Enhance

With the implementation of flipped learning, students expanded their knowledge of the content through the questions posed by me on Padlet prior to the class and further deepened it through discussions with me and their peers during class. Students' prior experiences The Web became an integral resource to search and find information before, during, and after the class. This created a continuous learning ethos within the class, which highly supports Masters level learning and knowledge construction. Figure 3 shows how a student used a mindmap to demonstrate the practical use of a learning theory.



*Figure 3 A student using a mind map tool to illustrate a particular learning theory*

## Empower

Throughout the trimester, students experienced several skills that identified by MOHE. They had to think critically and creatively to design and develop the website, from filtering the information gathered from the Web, to properly designing the interface and using the appropriate media, to create a visually appealing and informative website. In working in a group to develop the website, they experienced teamwork and leadership skills. They also cultivated their oral communication skills through the presentations that they made during the trimester and the virtual presentation of their 5-minute lecture using i-Studio (see Figure 4). Their written communication skills were developed through their reflections in their MMLS blogs and in the Padlet and Google Classroom discussions.



*Figure 4 Students orally presenting a video lecture using i-Studio*

These were very encouraging and shows promise for further redesigning of the classroom using the blended learning approach.

## Enjoy

One of the most important outcomes of blended learning is that the learning environment should be enjoyable to the students. The blending of face-to-face and online activities should create a learning environment that makes the learning very informative yet fun. In this course, the students were invited to attend the i-TEACH Symposium & Workshop 2017 to talk with international speaker and interview competing projects on their work and then identify the learning theories associated with these projects. They also visited the i-Studio lab in FCM to create their own presentation video. Figure 5 shows the students attending these activities.



*Figure 5 Students attending i-TEACH Symposium & Workshop and i-Studio*

## The Teaching designs

In redesigning the course, the EQUAD learning drivers was applied to 3 areas of the classroom, or in the teaching designs: 1) The instruction, 2) The learning environment, and 3) The class activities.



## 1. Designing the instruction

With regards to the designing the instructions of the course, flipped learning was used. As the instructor, I created a blog page (Dr. Mai's Place) using Wordpress built into the MILE platform as a centre point for students to view to get all the materials and information that they needed. In the blog page, pertinent information for the students such as their learning outcomes, course breakdown and grades, and class schedule, was presented so that they would always be aware of what was expected of them and what to expect from the class. Figure 6 shows a screenshot of my blog page for this course.

The screenshot shows a WordPress blog page titled "Dr. Mai's Place" with the tagline "Where all can be found". The navigation menu includes: HOME, CAMELOT, FCM CLASSES, INJE CLASSES, MEL AND MKM CLASSES (highlighted), AUN-DPPNET, INTI HOTS, ITEACH RETREAT, BLENDED LEARNING TALKS, BLENDED LEARNING SHOWCASE, UPM VISIT DEPT 26 2017, and EDUTECH ASIA 2017. Below the menu is a banner image of Funko Pop figures. The main content area is titled "Learning Theories (MLS7123)" and includes a link to "LINK TO MLS 7123 STUDENT BLOGS". The text welcomes students to the class and describes the course content. It lists the class coordinator as Prof. Dr. Neo Mai, the objectives of the class, and the learning outcomes. On the right side, there is a "PROF. MAI'S CONTACT INFO:" section with contact details for email, KakaoID, Facebook, and iMessage. Below that is a "STUDENT WORKS SHOWCASE" section with two small images.

*Figure 6. The instructor's blog page*

In flipping the class, students were asked to read the content of topic a week ahead so as to have some knowledge of the class content prior to coming to class. This was done via the online lectures which were uploaded onto the MILE platform for the students to access 24/7. The class schedule that was uploaded onto the blog page contained hyperlinks to the uploaded lectures which were in Powerpoint format. However, to make the lectures more engaging, a short Youtube video explaining the content of the Powerpoint slides was also provided to give both the visual and audio support to the content read. Figure 7 shows an example of the class schedule with the link to the lectures and to the Youtube video.

Class schedule (subject to change without prior notice):

Learning Theories (MLS7123)

Weekly Schedule

Week	Topic	Submissions
1	Overview (A/O)	Reading: <a href="#">How do people learn?</a>
2	<a href="#">Introduction to Learning Theories (L)</a>	<a href="#">Assignment 1 (10%)</a>
3	<a href="#">Behaviorist Learning Theories (L/O)</a>	Watch video on <a href="#">Behaviorism</a>
4	<a href="#">Information &amp; Cognitive Learning (L)</a>	Watch video on <a href="#">Information Processing</a>
5	<a href="#">Constructivist Learning (L/O)</a>	Watch video on <a href="#">Constructivist Learning</a>
6	<a href="#">Instructional learning strategies (L/O)</a>	<ol style="list-style-type: none"> <li><a href="#">Bloom's Taxonomy</a></li> <li><a href="#">ADDIE</a></li> <li><a href="#">Mayer's Multimedia Learning Theory</a></li> <li><a href="#">Gagne's 9 Events</a></li> </ol>
7	Class Activity (A/O)	
8	<a href="#">Constructivist learning strategies (L/O)</a>	<ol style="list-style-type: none"> <li><a href="#">Project-based Learning</a></li> <li><a href="#">Collaborative Learning</a></li> <li><a href="#">Cooperative Learning</a></li> </ol>

**THE EVERYTHING CALENDAR**

June 2018

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

[\\* ABG](#)

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**WHAT I JUST SAID WAS.....**

- Downloads August 1, 2017
- HRDF training files June 13, 2017
- Learning Theories Activities (Tri 2, 2016/2017) November 16, 2016
- Critical Thinking & Writing activities (Tri 2 2016/2017) November 16, 2016
- Learning Theories class: Students' work (Trimester 1 2016/2017) November 16, 2016

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**PREVIOUSLY ON....**

- August 2017 (1)
- June 2017 (1)
- November 2016 (3)
- November 2015 (3)
- March 2015 (1)
- February 2015 (1)
- March 2014 (1)
- November 2013 (1)
- October 2013 (1)
- November 2011 (1)

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**WHERE ARE THE POSTS?**

Select Category

*Figure 7. The class schedule*

By providing this page and the links to the students in two modalities (visual and audio), students can become more engaged with the content and be better prepared to the class.

## 2. Designing the learning environment

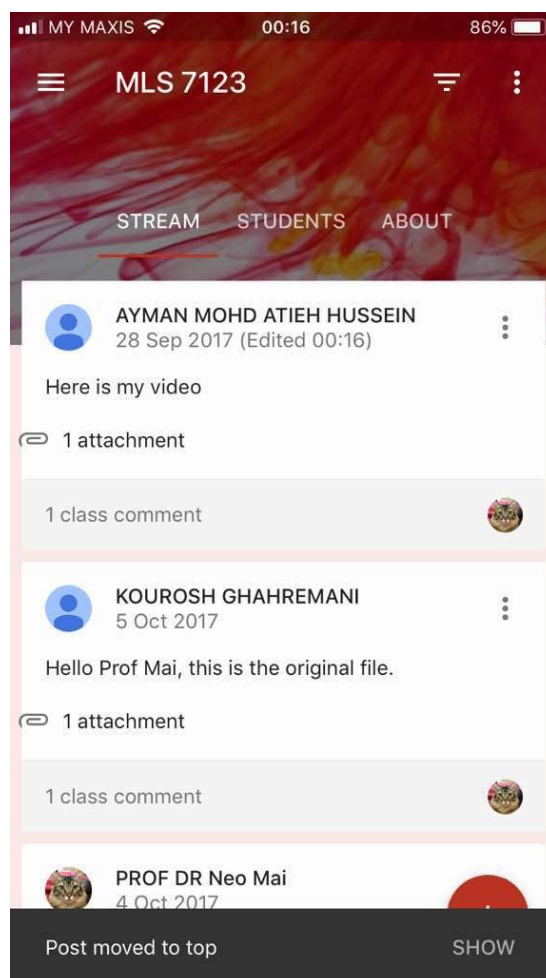
Asking students to read class materials prior to class via online lecture notes and Youtube videos is not enough to create an engaging learning environment for the students. Without any form of assessment of what was learned on their own before coming to class, students will soon bore of the process of reading the course materials, if their knowledge was not tested or assessed. Therefore, a more interactive learning environment needs to be created. In this Learning Theories course, students were engaged in the content in two ways:

- Padlet and Google Classroom from GSuites were used to interact with them and involve them in discussions and collaborative learning.
- A group project was tasked to them to develop at the end of the class, which required them to implement their knowledge of learning theories.

Google's GSuite for Education is an online platform that MMU has provided to academics and students to collaborate and interact with each other. Google Classroom is one of the applications in that suite of tools that enables lecturers and students to download and communicate with each other via their mobile devices. Therefore, as part of the blended and flipped classroom strategy, I used Google classroom to send announcements to the students or to pose questions on the topic learned in class for their comments. These comments can be seen by all other students, who can then comment back to their classmates. Using this app helps



create a more collaborative community of learners between the lecturer and students, not bound by physical space. It also allows me to track their assignment progress without having to wait to meet in class. Figure 8 shows a screenshot of Google Classroom on my mobile phone.



*Figure 8 Using the Google Classroom app to communicate with students*

To facilitate effective flipped learning, class time was used to conduct discussions and feedback on the course materials that students had read prior to class. This was done using Padlet. With Padlet, questions on the week's topic can be posed to students to answer prior to coming to class, while class time is then used to go over more complex parts of the content and to answer any questions they may have on the material. Padlet is a Web 2.0 tool that allows me to create posts unique to each student so that only they have to answer it. To make it fair to all students and to avoid copying each other's answers, a separate question was posed to them to answer. Figure 9 shows an example of a collaborative class discussion on a topic, and Figure 10 shows students' answers to the questions posed to demonstrate their knowledge of the topic.

The screenshot shows a Padlet board with a blue background and a grid of notes. The board is titled "Constructivism Week 6" and has 5 members. The notes are organized into three columns:

- Column 1: Constructivism**
  - Prof. Mai**: Name me 5 characteristics of constructivist learning.
  - Anonymous**: **Ibrahim Adam (Characteristics of Constructivist Learning)**
    - 1) Support collaborative construction of knowledge through social interactions
    - 2) Encourages thoughtful reflection on experience
    - 3) Provide real world settings and case-based learning
    - 4) Teacher takes the role of facilitator to provide guidance and assistance rather transferring the content
    - 5) Engage students: through open ended-questions, Assigning task, concept to create interest and self-exploring
- Column 2: Constructivist strategies**
  - Prof. Mai**: Choose one Constructivist strategy and write 5 bullet points about it. (If it has several principles, all the principles are ONE bullet point...:D) Bullet points must be full sentences. You can add images or videos if you like.
  - AYMAN MOHD ATIEH HUSSEIN**: Constructivist strategy : Project - based learning  
There is 5 criteria:  
1-PBL PROJECTS ARE SENTERAL , NOT PERIPHERAL TO THE CURRICULUM  
2- Focused on questions or problems that drive student to encounter  
3-involve student - in a constructive investigation  
4-Projects are student- driven to some significant degree
- Column 3: i-TEACH Symposium 2017**
  - Prof. Mai**: Which i-TEACH Symposium booth did you like, and why?
  - Anonymous**: **Mindy**  
I personally liked Dr Sharmin's booth where she integrated online tools in physical activities for her students.  
Her idea of getting the child of the students create fun and engaging classrooms that students enjoy. She uses a watermelon beach ball for students to toss around in questions and answers (Q&A) sessions, streams it live on Facebook and share their discussions on Padlet.  
In my opinion, though online tools are useful, physical engagement with students is equally crucial as

Figure 9 Using Padlet for collaborative discussions

The screenshot shows a Padlet board with a grey background and a grid of notes. The board is titled "Instructional Design Strategies 2" and has 5 members. The notes are organized into five columns:

- Column 1: Exercise Brief**
  - Prof. Mai**: Well done on the earlier exercise on instructional design strategies. Since many had used Cagne as the instructional design for the modules they chose, let's see if you can also demonstrate your understanding of the other instructional design strategies available.
- Column 2: Mindy -- What are the elements of Bloom's Taxonomy and why is it important? Illustrate one example with the modules in the carousel.**
  - Bloom's Taxonomy**  
Focusing on 3 domains of learning, below are the elements of Bloom's Taxonomy:
    1. **Knowledge (Recall)** - remembering learned information
    2. **Comprehension** - grasp meaning of information by translating and interpreting meanings
    3. **Application** - use of information to apply learning to real life circumstances
    4. **Analysis** - break down, identify and appreciate information
    5. **Synthesis** - assemble, construct new information from given components
- Column 3: Ozi -- As an instructional design strategy, what does ADDIE do and why is it effective?**
  - ADDIE model**  
ADDIE provides a dynamic, flexible guideline (framework) on building module; effective training and performance support tools. ADDIE model helps to save time and cost by discovering problems from the early stage of development.  
Composed of 5 stages:
    1. Analysis
    2. Design
    3. Development
    4. Implementation
    5. Evaluation
- Column 4: Ibrahim -- What are the differences between the domains in Bloom's taxonomy and how can it be applied in the classroom?**
  - Three Domains of Bloom's Taxonomy**  
**Cognitive**: this domain deals with knowledge and development of intellectual skills. It includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual (thinking) abilities and skills. This domain further is divided into 6 categories:
    - Knowledge
    - Comprehension
    - Application
    - Analysis
    - Synthesis
    - Evaluation
- Column 5: Ayman -- What are Mayer's Multimedia Learning Principles? Name them all and show where they are relevant using a module from the carousel.**
  - AYMAN**  
**Mayer's Cognitive Theory of Multimedia Learning**  
3 main assumptions:
    1. information is processed through 2 separate channels (auditory and visual)
    2. limited channel capacity
    3. Learning is an active process of filtering, selecting, organising and integrating information**Principles:**
    1. Better multimedia effect by Combination of text and pictures
    2. Spatial Contiguity
    3. Temporal Contiguity
    4. Coherence
    5. Modality
    6. Redundancy

Figure 10 Using Padlet to assess students' understanding of the topic

As weeks progressed and students became more used to knowing that their knowledge of the lectures they were asked to read a week before class would be assessed and used for discussion, the more prepared they became on the content, and, in doing so, became more involved in their learning process.

### 3. Designing activities

Project-based, authentic and collaborative learning approaches were incorporated into the design of the activities of the course. As this was a course in the e-learning program, the students were tasked with an e-learning project which they had to work together as a group to create. In particular, they had to create a website on learning theories of their choice that would serve as a learning portal to other students. In other words, they would need to implement the knowledge that they learned from the course into developing a website to teach others. This would be an authentic and real-world project as these students would become e-learning educators or trainers after they completed the programme. They would also have to work collaboratively in order to develop accurate content for the website. This project would be the culmination of all the class discussions and readings, and their abilities to deepen the knowledge they had acquired in the class. In other words, they could use the Web as a resource to gather more information to deepen the content presented. The students were encouraged to meet and discussed their project during the class times and also outside of class, ie in both in the physical classroom or online. They had 10 weeks to complete this project. Figure 11 shows the completed website by the students.

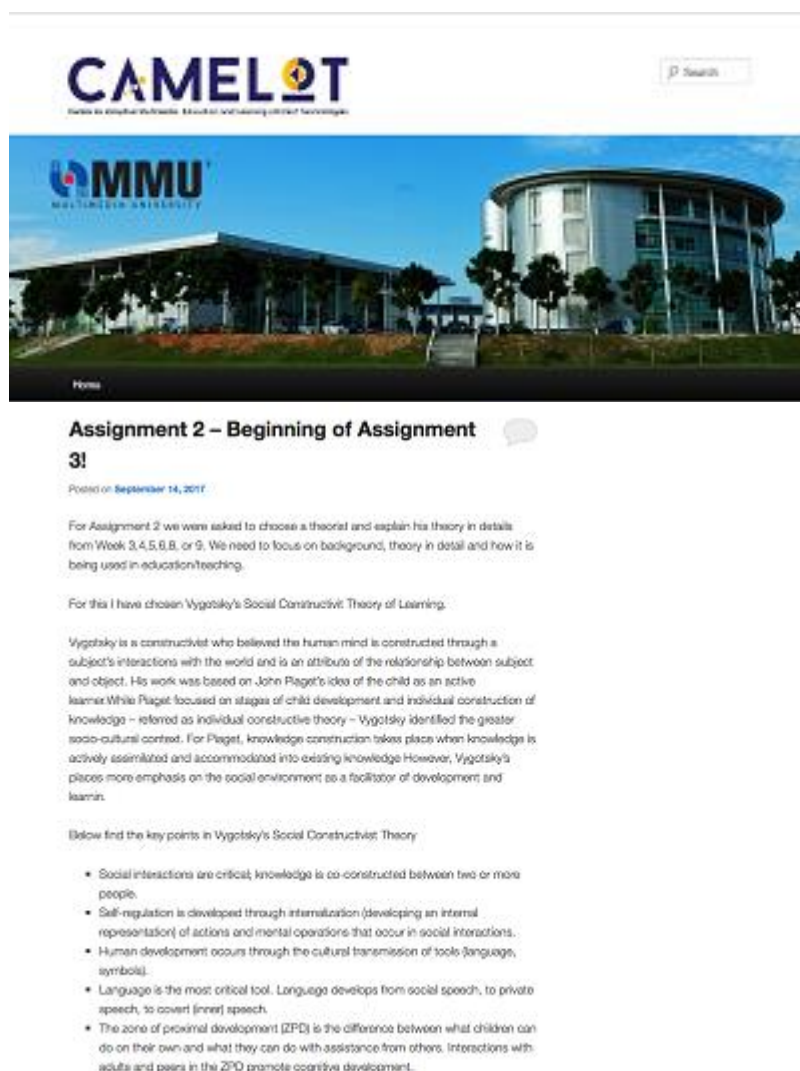
The screenshot shows a website with the following structure:

- Header:** "Constructivism Strategies & Instructional Strategies" with a search bar and the subtitle "multiple strategies from different perspectives".
- Hero Section:** A yellow banner with the title "CONSTRUCTIVISM & INSTRUCTIONAL STRATEGIES" and a colorful illustration of learning concepts like a lightbulb, gears, a brain, and a target.
- Navigation:** A dark bar with links: Home, Learning Objectives, Constructive Learning Strategies, Instructional Learning Strategies, Behind the Scenes.
- Content:**
  - WELCOME:** A section with an "Edit" button and introductory text about learning theories.
  - Table:** A table summarizing learning paradigms.

	Main Concept	Theorists Involved
<b>Behaviourism</b>	Learning process is through positive/negative reinforcement and punishment and considered a change in behaviour.	Ivan Pavlov John B. Watson E.L. Thorndike B.F. Skinner
<b>Cognitivism</b>	Learning process is through Rehearsing information and then	George Miller Atkinson & Shiffrin

*Figure 11 The group's final website*

In addition, in order to demonstrate that they understood their tasks, each student had to expound on their part in a group presentation. They also had to blog in MMLS on their work in progress. All these provided input to me to assess them. Figure 12 shows the blog page of a student in MMLS.



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**MMU**  
MULTI-MEDIA UNIVERSITY

**Assignment 2 – Beginning of Assignment 3!**

Posted on September 14, 2017

For Assignment 2 we were asked to choose a theorist and explain his theory in details from Week 3,4,5,6,8, or 9. We need to focus on background, theory in detail and how it is being used in education/teaching.

For this I have chosen Vygotsky's Social Constructivist Theory of Learning.

Vygotsky is a constructivist who believed the human mind is constructed through a subject's interactions with the world and is an attribute of the relationship between subject and object. His work was based on John Piaget's idea of the child as an active learner. While Piaget focused on stages of child development and individual construction of knowledge – referred as individual constructive theory – Vygotsky identified the greater socio-cultural context. For Piaget, knowledge construction takes place when knowledge is actively assimilated and accommodated into existing knowledge. However, Vygotsky's places more emphasis on the social environment as a facilitator of development and learning.

Below find the key points in Vygotsky's Social Constructivist Theory

- Social interactions are critical; knowledge is co-constructed between two or more people.
- Self-regulation is developed through internalization (developing an internal representation) of actions and mental operations that occur in social interactions.
- Human development occurs through the cultural transmission of tools (language, symbols).
- Language is the most critical tool. Language develops from social speech, to private speech, to covert (inner) speech.
- The zone of proximal development (ZPD) is the difference between what children can do on their own and what they can do with assistance from others. Interactions with adults and peers in the ZPD promote cognitive development.

*Figure 12 Blogging about project progress in MMLS*

In addition to projects, the activities also included creating their own learning video using i-Studio. This allowed my students to experience firsthand lecturing in front of an audience and to record a video of their lecture. This activity involved them creating a 5-minute slide presentation of a learning theory of their choice and record that lecture in the i-Studio lab. Not only would this give them firsthand knowledge of the teaching process, but, because they were going to be recorded, the information that they were presenting needed to be accurate, which consequently, led them to actively deepen their knowledge of the content on their own. Figure 13 shows an example of a video lecture recording with i-Studio.



*Figure 13 Student lecturing and being recorded in i-Studio*

### Face-to-face and online platforms

Supporting these teaching designs (instruction, learning environment, and activities), were both face-to-face and online platforms. The MMLS platform was used for students to create their blogs and post their reflection and work in progress. In addition to that, the MILE platform was used for students to access PowerPoint slides, PDF notes and content videos uploaded by the lecturers across all their classes, at anytime and anywhere. Google's GSuite app, Google Classroom, was used for interacting, communicating and collaborating with students. The flexibility of using both types of platforms, face-to-face and online, is advantageous to the blended learning and supports a higher level of engagement from students.

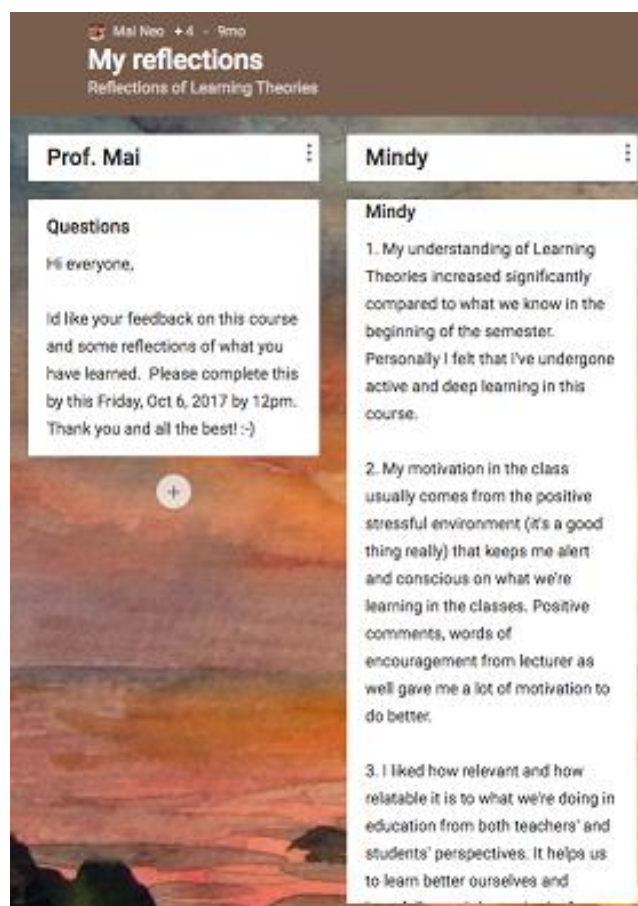
### Student feedback on the learning environment

At the end of the course, my students were asked to reflect on the course and what they had learned. Padlet was one of the tools used to solicit these comments, as well as the MMLS blogs, which had provided a trimester long reflective narrative of each student's experience in the course. In Padlet, students were asked how had their understanding of the course changed after going through the course, their motivation levels, and the activities and assignments given to them. Feedback and comments from students include,

1. *"Personally I felt that I've undergone active and deep learning in this course", "It helps me to understand and see how learning and teaching can be carried out with varieties of approach",*
2. *"It was engaging and organized. Discussions on the class helped us to see the perspective from both learners and teachers, with its respective theory of learning".*



Posts from the MMLS blogs also served as a good way to collect feedback from the students in order to observe their thought processes and reflections throughout the trimester. In their blogs, students made comments on how they were handling their assignments and project collaboration (see Figure 14).



*Figure 14 A student's comment and feedback in Padlet*

It was interesting to see that the students' comments were positive and encouraging, both for the use of the blended learning methodologies and for the tools. They commented that they were able to learn more and deeply about the topics of the class, and were motivated to collaborate and work with each other in the class. Reflections at the end of the trimester showed them commenting that, "[the]...Q&A sessions in particular, really stimulated our thinking, and though sometimes it is hard, it is really effective". Students also commented that they were motivated in the class, stating that,

1. "Positive comments, words of encouragement from lecturer as well gave me a lot of motivation to do better",
2. "Honestly, this is the most motivated class throughout the semester! We get chance to present our views and ideas and enhance those through discussions which is the key to motivation!"
3. "One of the most interesting things I liked was the content structure, the way it was presented in the lecture, and the summary of the theories led to the ease of building it, as well as the use of technology in the presentation, finally the studio",

4. “*The study of the theories was a great motivator for me in terms of the activities offered and the presentation made me work in a consistent and constant preparation for learning to take advantage of the future*”.

The blended learning approach was appealing to them, as commented by a student, “*Due to the incorporation of blended approach it kept us actively participated in the lessons*”. They also commented on being able to relate what they have learned to what they would do in the future (*I liked how relevant and how relatable it is to what we're doing in education from both teachers' and students' perspectives. It helps us to learn better ourselves and hopefully teach better in the future*”), making the course meaningful and relevant to them.

These comments provide very positive support that blended learning and the EQUAD framework would be an effective learning design to incorporate into the course.

## Conclusion

Overall, the implementation of the EQUAD framework into this course and using the blended learning tools made teaching the Learning Theories class very interesting, both from the lecturer’s and the students’ perspectives. The class became dynamic and creative, and a community of learners was created, consisting of the lecturer and students. Learning became process-oriented and not content-driven, and students became more active and responsible for their learning goals. Blended learning and using Web 2.0 technologies became effective enablers for the learning environment and, even though this strategy has been used in many of my other classes, students’ comments and feedback from this course provided very encouraging support for the continual use of blended learning and the EQUAD framework.

## References

- Alfassi, M. (2004). Effects of a learner-centred environment on the academic competence and motivation of students at risk. *Learning Environments Research* 7, 1 – 22, Kluwer Academic Publishers, Netherlands.
- Baeten, M., Kyndt, E., Struyven, K. and Dochy, F. (2010). Using student-centred learning environments to stimulate deep approaches to learning: Factors encouraging or discouraging their effectiveness. *Educational Research Review*, 5, 243 – 260.
- Chan, C.T. (2017) Impact of learning styles on the community of inquiry presences in multi-disciplinary blended learning environments. *Interactive Learning Environments*. DOI: [10.1080/10494820.2017.1419495](https://doi.org/10.1080/10494820.2017.1419495)
- García, M. G., López, C. B., Molina, E. C., Casas, E. E., & Morales, Y. A. R. (2016). Development and evaluation of the team work skill in university contexts. Are virtual environments effective? *International Journal of Educational Technology in Higher Education*, 13(1), 1-11.

- Johnson, L., Adams Becker, S., Cummins, M., Estrada, V., Freeman, A. & Hall, C. (2016). *NMC Horizon Report: 2016. Higher Education Edition*. Austin, Texas: The New Media Consortium
- Laurillard, D. (2013). Keynote: Designing the pedagogies for student guidance on the larger scale. *63<sup>rd</sup> Annual Conference International Council for Educational Media 2013*, Oct 1-4 2013, Singapore.
- Leow, F.T. & Neo, M. (2015). Collaborative Learning with Web 2.0 Tools: Analysing Malaysian Students' Perceptions and Peer Interaction, *Educational Media International (EMI)*, Vol 52(4), pp. 308 – 327. Taylor & Francis Publishing.
- Leow, F. T., Neo, M. and Hew, S.H. (2016) Investigating the key attributes to enhance students' learning experience in 21st century class environment. *Electronic Journal of e-Learning*, 14 (4). pp. 244-256
- Malik, M. W. (2010). Factors Effecting Learner's Satisfaction Towards E-Learning: A Conceptual Framework. *International Journal of Sustainable Development*, 2(3): 77-82.
- Ministry of Education Malaysia (2015). *Malaysia Education Blueprint 2015-2025 (Higher Education) Executive Summary*. Putrajaya: Ministry of Education, Malaysia. [Retrieved May 1, 2018, from <https://www.moe.gov.my/index.php/en/dasar/pelan-pembangunan-pendidikan-malaysia-2013-2025>].
- MOE (Ministry of Education) (2012), *National Education Policy*, Ministry of Education, [Retrieved May 1, 2018, <https://www.moe.gov.my/index.php/en/dasar/dasar-pendidikan-kebangsaan>].
- Ozverir, I., Herrington, J., & Osam, U. V. (2016). Design principles for authentic learning of English as a foreign language. *British Journal of Educational Technology*, 47(3), 484-493.



# 2

## **Academic Blogging: Using Blogs in the Classroom for Documentation, Reflection and Articulation of Knowledge**

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## About the author



**Ms. Heidi Tan Yeen-Ju** is a Lecturer in the Faculty of Creative Multimedia. She is currently the Deputy Director of ADEPT (Office of Academic Development for Excellence in Programmes and Teaching), and former Blended Learning Champion for the Faculty of Creative Multimedia. She is also Chairperson of the Centre for Adaptive Multimedia, Education and Learning Content Technologies (CAMELOT) research centre, Project Leader of an external grant project funded by TM R&D, head of the faculty's MOOC team, member of the faculty's web & editorial committee, and associate member of the Digital Education Research Institute. Her research interests include problem-solving learning, student-centred learning, interactive multimedia applications, Authentic Learning, Augmented Reality learning and web-based learning and instruction. Heidi is an HRDF and Google Educator Level 1 certified, has won Best Paper awards in international conferences, Gold and Silver medals for research innovations and MOOCs in exhibitions, 2017 MMU Excellence in Teaching Award, and was the 2018 First Place winner of the the National 3 Minute Thesis Competition (Social Science Category).

## Abstract

The use of blogs has evolved and changed so much since the term “weblog” was first coined in 1997, what started off as a personal online diary has since expanded into all aspects of publishing including academic blogging. This chapter presents a blended learning strategy that involves the use of blogs as part of an Authentic Learning framework in a creative multimedia class. The benefits of academic blogging for both lecturers and students are discussed and the teaching and learning strategy that was used in an E-Marketing class is explained. Evidence of how blogs are used by students and the perception of students towards the learning environment are presented to provide support for lecturers to consider exploring blogs as a tool for documentation, reflection, and articulation of knowledge.

**Keywords:** *Academic blogging, Authentic Learning, Blended Learning Environments*

## Introduction

At the Faculty of Creative Multimedia (FCM), classes are mostly project-driven where students work on class projects individually or as a group throughout the trimester. Therefore as part of the learning process, students are required to document their ideas and work. This allows the lecturer to track the student's understanding, verify that the work is done by the students, retain evidence of individual contribution to group projects and allows for formative assessment. For students, looking back and reflecting on all the work they did allows them to consolidate their learning and see how far they have progressed. Documentation of work-in-progress is also part and parcel of the standard workflow in the creative industry. Perhaps the most common real-world examples of work-in-progress documentation are "behind the scenes" footage of popular movies and concept art books of animated movies. There are various methods used by FCM lecturers to track students' work-in-progress, depending on the work that is being produced. As a lecturer with the Advertising Design department in the faculty, our department's traditional practice is to have work-in-progress documented through sketchbooks. Sketchbooks are great for students to brainstorm with, sketch out ideas and work on refining their ideas. However after the trimester is done and the sketchbook is submitted, two scenarios happen: 1. Students no longer have access to their ideas and work while the sketchbooks are with the lecturer. 2. When the sketchbooks are returned to the students, lecturer have no repository of the student's ideation process and work.

One of the ways to overcome this issue is by using blogs or learning journals to help keep a digital documentation of all the work done throughout a student's academic career. Using blogs in the classroom for educational purposes can benefit student learning in various ways. Blogs allow for students to collaborate online and encourages peer to peer learning. Students are provided a platform to speak out and articulate their ideas and engage in discussions with others (Chamberlain, 2017; Kochoska & Petrovski, 2017). Blogs can be used as a digital portfolio for the students to showcase their works, allows for reflection on their learning, and having students blog about what they have learnt is more engaging than asking them to just read a textbook (Kochoska & Petrovski, 2017). Students are not the only ones who benefit from using blogs, lecturers too can also benefit from the use of blogs for various academic purposes. Blogs can be used by lecturers as a learning management tool, by uploading the class information, schedule, and notes to the blog for students to access. Announcements can also be posted in the form of blog posts. Lecturers can also use their blogs as a means of curating content for their students. Websites, articles, images and so on can be curated and uploaded to your blog. Think of your blog as a one-stop centre for all information on your subject. Outside of the class, blogs can also be used as a way to get your research read by others (Stoneham & Kite, 2017). Writing blog posts about your research or research activities you are involved in can help boost your research visibility and potentially connect you to collaborators as noted by Northam (2012) who writes for Bournemouth University's BU Research Blog (<http://blogs.bournemouth.ac.uk>).


## Orion

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HOME
EDUTECH ASIA 2017
GLU-ED (15 MARCH 2018)
MAD1033 E-MARKETING JUNE 2016

MAD2053 – WEB DESIGN (TRI 2, 2016/2017)
PEDAGOGY & TEACHING FOR MMU GRAS (15.09.17)



### Protected: Pedagogy & Teaching For MMU GRAS (15.09.17)

**SCHEDULE:**

8:45 am to 9:00 am – Registration & breakfast

9:00 am to 9:30 am – Ice-breaker/energizer, Welcome message by ADEPT Director Prof. Dr. Neo Mai

9:30 am to 10:00 am – What issues do GRAs face? [Ms. Heidi]

10:00 am to 11:30 am – How to teach [Dr. Sharmini]

11:30 pm to 12:30pm – Public speaking tips and tricks [Ms. Ng Mindy]


12:30 pm to 2:30 pm – Lunch break

2:30 pm to 4:30 pm – Introduction to BL tools for classroom engagement, communication and collaboration + how to prepare learning materials for use in class [Mr. Low Jing Hong & Ms. Nazirah Mat Sin]

4:30 pm to 5:00 pm – Re-look at issues raised in the beginning + Wrap up [Ms. Heidi]

**RESOURCES:**

Padlet: <https://padlet.com/heiditan/MMUGRA>



Dr Sharmini's slides: [How to Teach](#)

Ms. Ng Mindy's slides: [Conquering Fears of Speaking in Public](#)

Mr. Jimmy Low's slides (he will email it to you)

Ms. Nazirah's slides: [learn ppt in 60 minutes](#)


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\*\*Consultation outside of lecture hours are strictly by appointment basis only.

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**CATEGORIES**

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**Figure 1.** Screenshot of my blog used for GRA workshop

Part of my blended learning teaching strategy is using my blog as a way to curate information for my students and to upload my class schedule, information and learning materials (slides, project briefs, etc.). Aside from my classes, I often also use my blog for all my training materials when I conduct workshops. It makes it easier for me to share my slides and materials with participants. For example, when I conduct my “Pedagogy and Teaching for MMU GRAs” workshop, I prepare a special password-protected page on my blog that contains all the slides, links, and resources they would need for the workshop. All they need on the day of the workshop is one simple link to my blog which I either give in a shortened URL format or get them to scan the QR code I placed on my blog. I then give them the password and then they have instant access to all the materials from the trainers. This eliminates the need to email the participants the files or to use thumb drives for file transfer. The password protection also ensures that no one outside of the workshop has access to the content of the workshop. Figure 1 shows the screenshot of the blog page I used when I conducted the GRA workshop.

## The Authentic Blended Learning Strategy

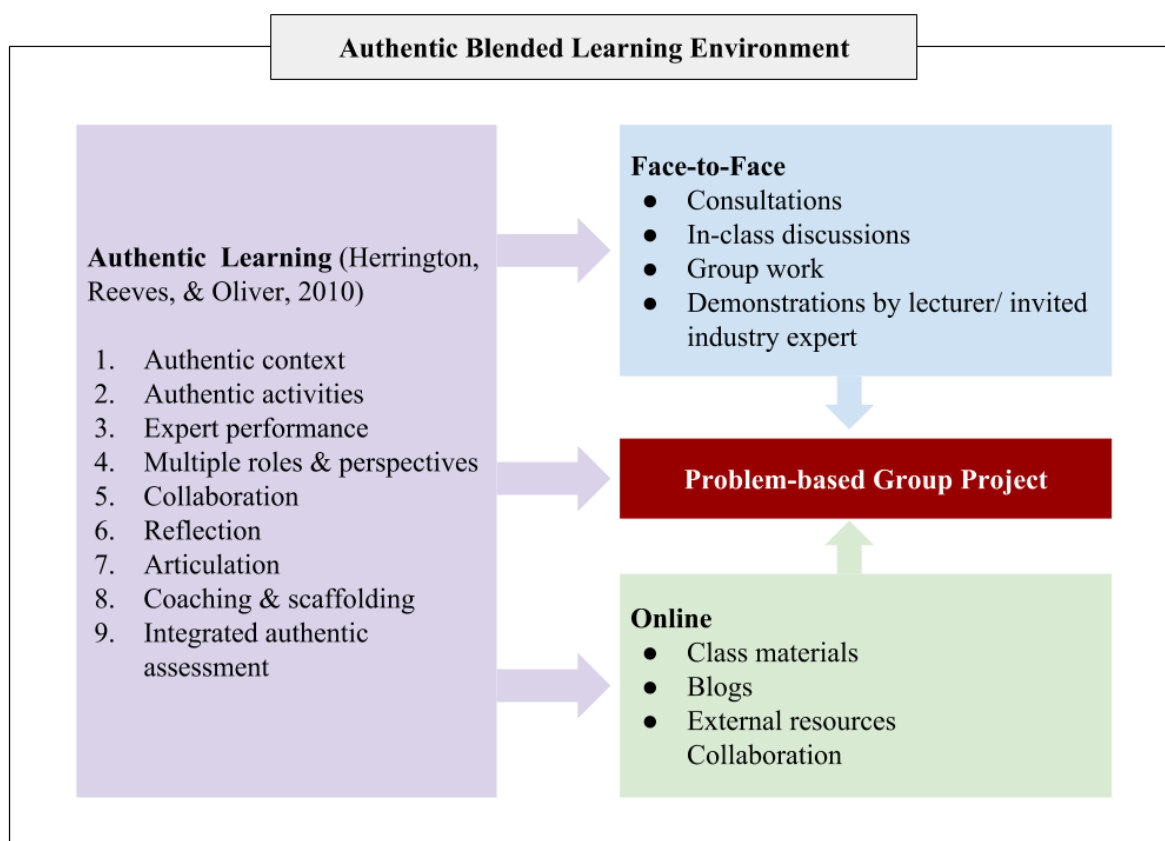
In this chapter, I will share my experience with one of the classes I coordinate, MAD1033 E-Marketing, where I used blogs as one of the main technological support tools in my blended learning strategy. The E-Marketing class is an undergraduate class in FCM and is one of the core subjects for Advertising Design students. For this particular class, I had 59 students who were a mix of international and local students. One of the objectives of this subject was for students to learn how to plan and execute an effective e-marketing strategy. Therefore I used Authentic Learning principles as my framework to design a blended learning environment and captured the student's learning process with the use of blogs. Authentic Learning is a pedagogy under Constructivist Learning that focuses on complex problems that mimic those found in real life, ensuring learning environments provide students with real-world relevancy (Ma & Lee, 2012). There are 9 principles of Authentic Learning outlined by Herrington, Reeves and Oliver (2010), of which 2 of the principles are "reflection" and "articulation". The Authentic Learning principle of "reflection" is about ensuring that students are given ample opportunities to take a moment and think deeply about what they have learnt and "articulation" is about creating a learning environment that allows students to voice out their opinions and ideas (Herrington & Kervin, 2007). "Articulation" can be achieved by having presentations and discussions in class, however, I wanted to provide an alternate way for students to present their ideas and express their understanding. Hence, I had all my students use blogs throughout the trimester to document their learning process which gave them an avenue to reflect on their learning and articulate their understanding. The rest of the principles of Authentic Learning, guidelines to implement them and how I applied the principles in my class are listed in Table 1.

Table 1. Mapping of Authentic Learning Principles with Group Project

<b>Principles of Authentic Learning</b>	<b>Guidelines for implementation</b>	<b>Authentic Task - Group Project</b>
Authentic Context	Context demonstrates how theory is applied to real-life situations	Students had to apply E-marketing theories into a real-life situation.
Authentic Activities	Activities that are akin to tasks faced in the real world	Students carried out activities that mimicked responsibilities they would face in the industry.
Expert Performance	Students get to observe an expert demonstration before trying it themselves	An expert from the industry was invited to run a social media marketing workshop and demonstrate how it is done.
Multiple Roles and Perspectives	Information is presented in a wide array of formats	Lecture materials and the web environment allowed students to learn from a variety of sources.
Collaboration	Creating opportunities	Students collaborated in groups to solve

	for students to work together	the task given and shared their progress and discussions on their blogs.
Reflection	Students reflect and consolidate knowledge gained	Blogs were used to keep a record of the student's work-in-progress and to give students a way to reflect.
Articulation	Encourage and allow the voicing of opinions and ideas	Students were able to share their understanding through the blogs and in-class presentations.
Coaching and Scaffolding	Lecturer provides guidance when needed	Students were guided through in-class consultations as well as given online feedback.
Integrated Authentic Assessment	Assessments part of the classroom activities/tasks	Cumulative assessments were done in various stages as students progressed in their project.

Figure 2 illustrates an overview of the class structure which I call the “Authentic Blended Learning Environment”. The learning environment comprises 3 key components: 1) An online learning environment, 2) A face-to-face learning environment, and 3) A problem-based group project. These components were supported by Authentic Learning as the pedagogical framework. The group project was designed to immerse students into an authentic learning experience to allow for students to “see” how digital marketers would work on an online marketing campaign in the advertising industry; it required students to plan, design, and develop an e-marketing campaign. Working in groups of four to five, students created their own startup companies and proceeded to strategize an e-marketing plan to launch their company and increase customer awareness.




*Figure 2. The Authentic Blended Learning Environment*

The problem-based group project was split into 3 phases over the course of the trimester (14 study weeks) - 1) Research, 2) Planning, and 3) Development. Students were assessed at each of these phases and given feedback or constructive criticism to help them further improve their work. As part of the project, students were required to document their work-in-progress, ideas, discussions, and meetings on their blogs. Students also went into the online learning environment to access interactive learning modules, web tools, and other web resources that would support them throughout the learning process. During the face-to-face sessions in class, students were able to consult with me or their tutor on their progress, have group discussions amongst their peers, discuss lecture notes and observe live demonstrations by the invited industry expert. The learning environment was designed to seamlessly connect learning in the classroom and learning outside of the classroom (online) to allow students to experience a non-linear form of learning. At the end of the trimester, students were required to present their ideas and final project outcome to the class before submitting their work.

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HOME   EDUTECH ASIA 2017   GLU ED (15 MARCH 2018)   **MAD1033 E-MARKETING JUNE 2016**  
MAD1053 - WEB DESIGN (TRI 2, 2016/2017)   PEDAGOGY & TEACHING FOR MMU GRAS (15.09.17)



**Protected: MAD1033 E-Marketing June 2016**

**WELCOME TO THE E-MARKETING CLASS!** 🌟

This subject covers the methods available for marketers to market their business online. Student will learn the concepts and applications of e-marketing and develop strategic thinking skills in planning for e-marketing. Student will also learn on how to leverage the electronic media for product promotions and transactions.

Please fill out your details in this google form: <http://goo.gl/forms/60N2S40aR0vYHao9w>

For this subject, we will be exploring various blended learning tools, so please join the Google classroom I have set up. I will be posting announcements and information about the class in Google classroom more than over here in MMLS. To join, go to <http://classroom.google.com>. log in using your MMU email, key in this class code to join the class: ihqerib

*This is a 3 credit major subject.*

**Learning Objectives:**

- To develop students' knowledge in the areas of e-marketing.
- To develop students' analytical skills in marketing online as effective as offline.
- To Design and execute e-marketing plan, strategies and applications
- To explain current marketing trends by top brands and different types of brands

**Learning Outcomes:**

1. Identify suitable creative strategies and ideas in online marketing
2. Display technical competencies in constructing a e-marketing plan, activities and strategies based on research and observation
3. Differentiate the needs, trends and industry practices in online marketing

**Breakdown:**

1. Project 1: 10%
2. Project 2: 20%
3. Lab exercises: 20%
4. Quiz: 10%
5. Final Exam: 40%

Total: 100%

**Tentative Class Schedule for Trimester 1 (2016/2017)**

WEEK	Lecture (Tuesday 4pm - 6pm)	Lab / Tutorial
1 27 Jun - 3 Jul	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• <a href="#">wiki_introduction/Class Guidelines</a></li> <li>• <a href="#">wiki_introduction</a></li> </ul>	No lab
2 4 Jul - 10 Jul	<ul style="list-style-type: none"> <li>• Hari Raya Holiday</li> <li>• Replacement: Online class - Digital Marketing</li> <li>• <a href="https://edupuzzle.com/assignments/770df4206f86f73ba4e6d67e2a7b">https://edupuzzle.com/assignments/770df4206f86f73ba4e6d67e2a7b</a></li> </ul>	No lab due to holiday. Students to complete task online (Edupuzzle, Google Classroom)
3 11 Jul - 17 Jul	<ul style="list-style-type: none"> <li>• <a href="#">Internet User Characteristics and Behavior</a></li> <li>• <a href="#">Project 1 Brief</a></li> </ul>	User Analytics (2%)
4 18 Jul - 24 Jul	<ul style="list-style-type: none"> <li>• <a href="#">Marketing Knowledge</a></li> </ul>	Online Banner Ads (4%)
5 25 Jul - 31 Jul	<ul style="list-style-type: none"> <li>• <a href="#">E-Marketing Plan and Leveraging Technology</a></li> </ul>	Google AdSense

**Figure 3.** Screenshot of the blog with class information

Figure 3 shows a screenshot of the class information I posted on my blog for my students to have an overview of the subject. The class schedule was also available to them and contained links to all the topic materials.

## The student learning process

The learning process experienced by students in this Authentic Blended Learning Environment is as follows:

1. At the start of the trimester, all learning materials were uploaded to my blog and students were given access to my blog throughout the trimester. After briefing the students on their group project, they proceeded to form their groups and begin work on the project. In the first phase of the project (Research), students had to critically analyse past e-marketing campaigns and prepare a report on why it was or wasn't successful. They worked together to discuss and see what they can learn from those campaigns.



2. The next phase (Planning) saw students applying the knowledge gained from phase 1 into the planning of their own e-marketing campaign. The class time which used to be mainly for lectures was now used for facilitating discussions on the project and to address any issues faced by the students. I demonstrated content creation tools used in the industry and invited an industry expert to conduct a workshop for the students to gain more real-world exposure.
3. Finally, once all the planning is done, students would work on developing their project in class and continue that collaboration outside of class thanks to social media platforms. Assessment was integrated into the different phases of the project as well as by monitoring their progress documented on their blogs. Consultations were done in class and through the blogs to help guide students towards completing the project.

At the end of the project, students presented their final outcome to the entire class and submitted their work. The Authentic Blended Learning Environment was designed to allow students to see the relevance of the knowledge they were gaining, how it would be applied in a real-world task and immerse themselves in an authentic learning experience.

### **How blogs were used to capture the learning process**

While it seems like a lot was going on throughout the trimester, all these were captured in the students' blogs as I had several ways of using blogs for my class. Aside from documenting their work-in-progress and group meeting updates, I posed questions to my students which made them do a bit of research before they answer the questions on their blogs. For example, at the start of the trimester, I asked students to watch a video on e-marketing and to explain in their own words what they understood by "e-marketing". On weeks that I plan a blended learning activity, I get students to respond to the activity by submitting through their blogs and count that submission as their attendance. As the students worked in groups for their project, the blogs were a way for me to give individual assessments as I could easily tell who in the group did the work. In Week 1, I told my students the importance of their blogs and how they would be graded and assessed based on their blog updates, this was to make sure no students would complain that they didn't know. The following are screenshot examples of how my students used their blogs while working on completing the project.

## Final analytics report for this project



Posted on [October 3, 2016](#)

E-marketing class help me to know how to promote my new company through social media campaign such as Facebook, Instagram, web banner, official website, Email marketing and mobile app. For this project i did the mobile app. There are many online website for us to create mobile app such as Build Fire, Como. I have tried most of them and found Como is the most user friendly one and Build Fire is the worst one I have tried because when I doing my mobile app with Build Fire I faced many problem such as can't upload images and can't change the style of the homepage. So finally I try the Como website to create my mobile app. I want to suggest here if you need create a mobile Como will be the most user friendly website. By doing this project I have realized to promote a new open company is quite difficult. We need to have a well-planned social media campaign to promote our company. We also should think carefully of our company's strengths and weaknesses and our target group and then use different kinds of social medias to grab more target audiences.

My group members are all working hard with this project. The group leader is very conscientious and hard-working. He always posts some links about e-marketing to help us learn and understand more about social media campaign. Our group also keep on consulting with Mdm.Noni and sometimes with Miss.Heidi. They helped us to correct some mistakes and provide some new ideas for our project.

In conclusion e-marketing is a very useful and important class. I have got a lot of knowledge about how to do the social media campaign to promote a company.

Posted in [Uncategorized](#) | [Leave a reply](#)

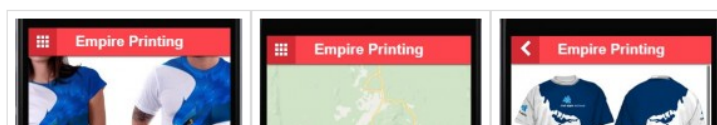
## Assignment 2 Mobile App



Posted on [October 3, 2016](#)

For the assignment I am doing the mobile app for our T-shirt Print service company.

Below are some screenshots for my mobile app.



**Figure 4.** Student self-reflection

Figure 4 is an example of a student using the blog for self-reflection at the end of the project. Blogs allow the student to think deeply about what they have learnt, and give us lecturers some insight into the minds of our students. The student wrote, *“By doing this project I have realized to promote a new open company is quite difficult.”* Often students think doing an e-marketing campaign is simple as they think it's just posting on social media - something they do every day. However as the project was designed to be an authentic reflection of what they would face in the industry, students quickly realize there is more to it than just posting on social media platforms. So I was really happy when I saw this blog post as I could see that my student understood the reality of planning e-marketing campaigns and hopefully the experience would benefit the student when they graduate and join the industry.

23  
SEP / 2016

## Assignment 2 (Progress 1.0)

Hey guys ! So we've been working on Assignment 2 which is due on 4th of October 2016. Each of us has our own parts because that is how group project works. So, I am the one who is responsible to design a website mockup for our company. Here I've attached one of the mockups but it hasn't been finalized yet.



We met Madam Noni last Thursday for consultation and she does helps us a lot. Thank you for your advices, Madam. I'll have to add something on the mockup as it looks so clean and there's lots of empty spaces. So, at this point, we've done all parts (haven't finalized yet) except EDM, but will start soon.

Thank you to Madam Heidi and Madam Noni for your valuable advice and guidance.

*Figure 5. Consultation updates*

Consultations and critique sessions are very important in FCM, it helps us monitor the student's progress and help them to improve on their work. Consultations usually happen in face-to-face situations and what is discussed during the consultation is usually not captured. Therefore I encouraged my students to blog about what they discussed during consultations with myself or their tutor, as seen in Figure 5. This helps them to keep track of the changes they need to make and to be able to refer back to comments that were made at any point of the project. It also helps me to keep track and know if students have been regularly consulting any of the class teaching staff regarding their project. If we notice certain students have not been consulting, we speak to the students in the class to find out why. This helps us identify students who could potentially be having problems catching up with the class or may have other struggles that are hindering them from focusing on their project.

## Display Ads Mockup

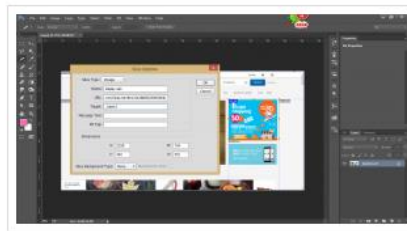
Posted on [October 4, 2016](#)



I also did the mock up of our display ads for our presentation ~~ This is what I learned from Madam Noni ~By using Photoshop to created an html to link to our Facebook Page ~

Our mockup page

By using slide tool in Photoshop to add a link to our page ~



So basically this is how we wanted to place our display ads to promo our company through the website that relevant with our company, like for example ebay, lazada, amazon,tmall ,taobao and others ~



*Figure 6. Work-in-progress updates*

Figure 6 is an example of how the students would blog about their work-in-progress updates. Often they would post photos of sketches they did, brainstorming sessions, and include screenshots of the programme used with the output of what they did. Sometimes students would post progress updates and ask for my opinion or seek advice if they encounter any problems, I would then leave them a comment with my suggestions and help troubleshoot any issues they face.

### The outcome

Overall out of 59 students, 24.56% of students scored an A grade, 43.86% of students received a B grade, 24.56% got C and 4 students (7.02%) failed but passed the subject after taking their supplementary exam. Figure 7 shows the grade distribution after the final exam (before supplementary exams).

Std Dev	11.83
Variance	139.98
Average	66.32
Max Marks	89.82
Min Marks	40.18

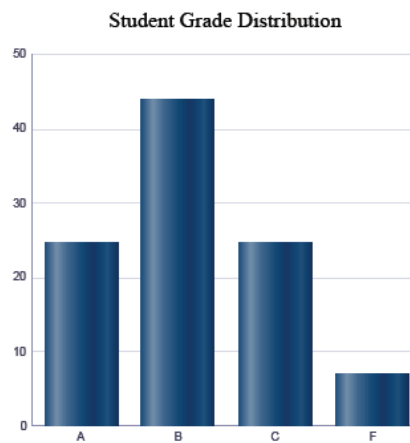


Figure 7. Student Grade Distribution

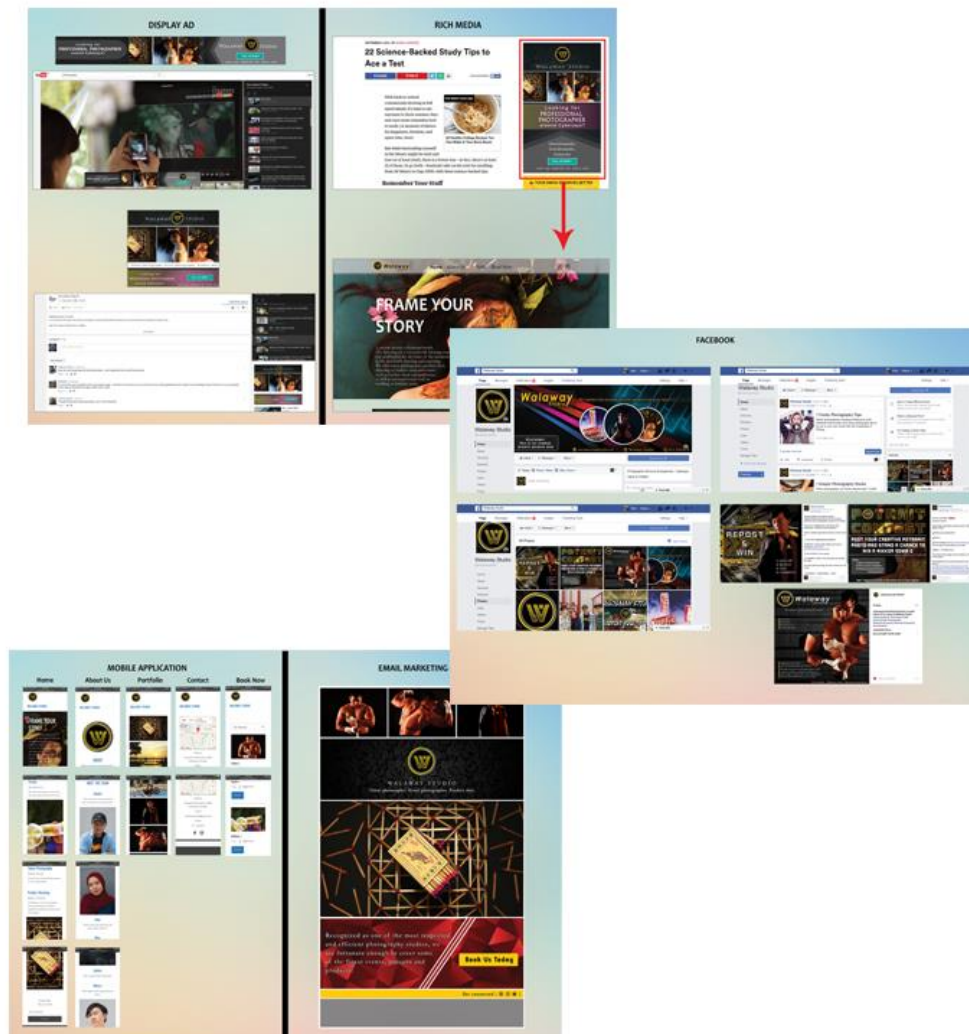


Figure 8. Example of final project output

Figure 8 is an example of one group's final project compilation. At the end of the trimester, students were surveyed to see how they felt about the learning environment. Based on the results of the survey, overall students showed a positive response to the learning environment and indicated they felt all 3 components of the learning environment was important to their learning. Means of all the survey items were above 4 (based on a 5 point Likert scale where 1 is "Strongly Disagree" and 5 is "Strongly Agree") which meant a majority of the students agreed to strongly agreed with the statements in the questionnaire. They found the project gave them real-world experience (M= 4.39), that consultation with the lecturer and discussion with their peers was an important aspect towards completing their project (M=4.50; M=4.39; M=4.37), and that the online learning environment provided them with access to more resources and was a platform for collaboration (M=4.17; M=4.17). This is further supported by student comments (quoted verbatim) where they said "*I feel motivated because doing this project is like doing the real business.*", "*It helped me understand that e-marketing is not just about posting things online but about being mindful on how you do it.*", "*The lecturer's and tutors input were so helpful in keeping us stay motivated.*" and "*...[the blogs] make sure everyone has a fair amount of work and everyone is doing their work and not the leader only.*". This is why it's important to remember that MMU's definition of blended learning is "*Integrating online activities with face to face class teaching in planned, pedagogical & valuable manner*". The online learning environment that comprises the blogs, web-based learning materials, and open resources work hand in hand with the face to face class teaching to engage students and equip them with theoretical knowledge which they then apply towards a real-world problem-solving project.

## Summary

In this chapter, I have shared my strategy for using blogs in a class as part of a blended learning strategy, discussed the potential benefits blogs have on a student's academic journey and shown encouraging evidence based on my experience. When I was coordinating this class, the blogs used by my students were set up on a platform called The MILE Project which is an award-winning platform created as part of a TM R&D funded research project I was involved in. Since then, the blogging component of the MILE platform has been integrated into MMU's own learning management system MMLS. Now, all staff and students are automatically given a blog account which can be accessed through MMLS. This has made it very easy to incorporate the use of blogs as part of your blended learning strategy, therefore I strongly encourage all lecturers to give it a try.

## References

- Chamberlain, E. (2017). Extending the classroom walls: using academic blogging as an intervention strategy to improve critical literacy skills with elementary students. *Education* 3-13, 45(2), 243-257.
- Herrington, J., & Kervin, L. (2007). Authentic learning supported by technology: 10 suggestions and cases of integration in classrooms. *Educational Media International*, 44(3), 219-236.
- Herrington, J., Reeves, T.C., and Oliver, R. (2010). *A Guide to Authentic e-Learning*. New York: Routledge Publishing.

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Kochoska, J., & Petrovski, J. (2017). Blogging in the 21st-century classroom. *International Journal of Science and Research (IJSR)*, 6(1), 861-864.

Ma, Y. J., & Lee, H. H. (2012). Incorporating an Authentic Learning Strategy Into Undergraduate Apparel and Merchandising Curriculum. *Journal of Experiential Education*, 35(1), 272-289.

Northam, J. (2012, January 11). The benefits of academic blogging – should you enter the blogosphere?! [Blog post]. Retrieved from <http://blogs.bournemouth.ac.uk/research/2012/01/11/the-benefits-of-academic-blogging-should-you-enter-the-blogosphere/>

Stoneham, M. J., & Kite, J. (2017). Changing the knowledge translation landscape through blogging. *Australian and New Zealand journal of public health*, 41(4), 333-334.

# 3

## **Goodbye Class Cancellation via Online Class**

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## About the author



**Dr. Chin Poo Lee** is a senior lecturer in Faculty of Information Science and Technology at Multimedia University, Malaysia. She completed her Masters of Science and Ph.D. in Information Technology in the area of abnormal behaviour detection and gait recognition. She is currently the Deputy Director of ADEPT (Office of Academic Development for Excellence in Programmes and Teaching), Chairperson of the Admission and Credit Transfer Committee, a senior researcher of a few Mini Fund projects, and project leader of an external grant project funded by MOHE. Her research interests include action recognition, computer vision, gait recognition, and deep learning, and has won Gold and Bronze medals in ITEX (2018 and 2016) and PECIPTA (2015) competitions. Dr. Lee is also an HRDF Certified Trainer.

**Abstract** – The era of e-learning poses a challenge to teachers when conducting online class since most of us have received our education in a traditional school. The online class is much different from face-to-face class. Even a teacher who has taught the same subject for several times will need to spend much effort figuring out how to teach online effectively. This chapter shares some tips on how to conduct effective online class, including tell your expectation, chunk the lessons, plant interaction into the curriculum, be present but plan your time and provide constructive feedback. The chapter also describes two free Learning Management Systems that provide useful course and student management features to serve the online classroom purpose.

**Keywords:** *Online Class, active learning, learning management*

## INTRODUCTION

There are times when classes fall on public holidays or coincide with other inevitable events like workshop, conference, meeting and so like. In these circumstances, the teachers (teachers here refers to the teaching staff, i.e., lecturers and tutors) have no choice but to cancel the class and to arrange a replacement class. Having a replacement class is challenging as we need to find a time slot that every student is available. In addition to that, booking a venue is also a difficult task especially when you have a very large class size. Luckily, the introduction of blended learning sheds some lights on the issue. Other than replacement class, we have another option – to conduct the online class. So we can now tell our students, “We do not have face-to-face class, but we have online class”. Quoting what Prof. Mai have said, “We don’t cancel class. Instead of having class here (brick and mortar classroom), now we have class there (online)!”(Neo, 2017) Yeah, it sounds cool!

This chapter serves as a sharing section for teachers who are interested in conducting online classes. Teaching online is different from face-to-face and it requires an even keener emphasis on student engagement. A common misconception about conducting online class is that the teachers just upload the course materials and homework, and the students will view the course materials and submit the homework on their own. We need to bear in mind that having online class is not merely conducting a “lecture class” online, it should be an “active learning class” online. Active learning stands in contrast to traditional learning mode where teachers do most of the talking and students are passively listening and learning. Active learning puts emphasis on the students and their learning needs. In active learning, students engage the learning materials through reading, writing, speaking, listening, and reflecting. There are many teaching strategies to actively involve students in the learning process, for instance, problem-solving, student-led group discussions, case studies and review report writing. The benefits of active learning activities are plentiful, among them are enhanced critical thinking skills, improved problem-solving skills, increased retention and transfer of information, improved interpersonal and communication skills and an increased sense of agency over the learning process. In another sense, teachers in higher education classrooms are not just about teaching, they are essentially the skills facilitators that nurtures the 21st-century skills in students so that they can apply in all walks of life.

In fact, conducting online class might consume much more time than a face-to-face class. Even a teacher who has taught the same course dozens of times will spend many extra hours planning how to teach it online. Fortunately, there are some tips and tricks that teachers can follow for effective implementation of online classes. The section below shares some tips and tricks for effective online class. The list is by no means exhaustive, you can have your own tactics too!

### Tips for Effective Online Class

Some rules of thumb for effective online classes: tell your expectation, chunk the lessons, plant interaction into the curriculum, be present but plan your time and provide constructive feedback (O’Malley, 2017; Palletier, 2013).

#### 1. Tell your expectation

Prior to the online class, teachers should tell the students what to expect in the online class. Specifically, teachers should inform about the topics or questions the class will cover, the

necessary preparation, and the expected outcomes at the end of class. As a rule of thumb, the instructions should be as precise and concrete as possible. For example, “Identify one specific challenge you face regarding public speaking.”, “Discuss three types of biometrics used in identity authentication”. When the students are well informed about what to expect, they are often more willing to participate in the online class. It is even better if the teacher makes available the assessment rubrics. Assessment rubrics provide the criteria for students to see how their work will be assessed. Rubrics also detail the expectation at every level of performance. With rubrics, students can focus their work towards fulfilling the criteria. At the end of the assessment, the teacher should provide the grading rubric with points earned and comments to show the students how you derived their score. The teacher should also inform the students about the policy for work turned in late.

## 2. Chunk the lessons

Chunking information is important in instructional design because it reflects how our brain works. George A. Miller introduced the chunk concept in 1956, as he evidenced that working memory could only hold approximately seven chunks of information at one time (Miller, 1956). Long lectures are always not a good way to engage students in a face-to-face class and are even more ineffective online. In view of this, teachers should avoid hundreds of lecture slides, pages of text or an hour-long video. An effective online class should involve a combination of text, video, audio clips, discussions, collaboration, and/or hands-on exercises. The lecture slides should be limited to the essential and important notes that reinforce the primary concepts of the module. It is recommended to design text lessons with ample white space, incorporate pictures to better illustrate what is in the text and use color in section titles. Edpuzzle (<https://edpuzzle.com/>) is a web tool that allows you to crop the video and insert notes and voice-over into the video. Teachers can also insert quiz questions at any point in the video and track the students’ mastery of the lesson.

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### *Challenge 1:*

*Name two free web tools that can be used to chunk videos. Compare the functions of the tools side by side.*

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## 3. Implant interaction into the curriculum

An effective online class should be a give-and-take session that cultivates interaction among teacher and students. Several teaching strategies are useful in promoting the interaction, namely discussion, collaboration, and peer review assignments, among others. The discussion strategy is usually where the heart of interaction takes place. Some students never ask questions or participate in discussions, usually because they are either shy or are not engaged. Therefore, it is advisable to divide the students into small groups for the purposes of discussions, group activities and collaboration. Maintaining a small group size also reduces the barriers and makes it much easier for the students to coordinate their time. In addition, the teacher may allocate some assessment percentage to the discussion so that the students are more willing to participate. To initiate the discussion, the teacher can pose a content-relevant question that requires students to pick a side. For instance, “What is the impact of biometrics: protecting privacy or risking privacy?” Ask students to write their opinion on the discussion board and

then encourage other students to explain or defend their viewpoints. See what insights the class can provide before wrapping up the discussion yourself. Multimedia Learning System (MMLS) (<https://mmls.mmu.edu.my/>) features a discussion board that teachers can create a category or topic. The best thing is that the teacher will receive an email whenever the students post their comments in the discussion board. Figure 1 shows the discussion board in MMLS.



**Figure 1:** The discussion board in MMLS. The teacher will receive a notification email whenever there is a new comment in the discussion board.

Student collaboration in an online class requires proper task specification and team management. The task design should clearly convey the expected outcome of the activity. Teachers need to describe the requirements for participation in the activity as well as the specific online collaboration tool to facilitate communication within a group. Besides that, the grading scheme should reflect the importance and benefits of working in a group. Figure 2 presents a sample task specification for online collaboration. Once teams are formed and the students have some common understandings of the task requirements, ask the students to document their team agreement. The team agreement details the expertise, roles, and responsibilities of each member, the task distribution and conflict management procedure. A sample team agreement is illustrated in Figure 3. Google Docs (<https://www.google.com/docs/about/>) is an online collaboration tool for document creation. The beauty of online collaboration tool is that different parties from different geographical locations can jointly author the same document at the same time. In addition to that, the collaborators can access the document anytime, anywhere and from any device. Google Docs automatically saves the document and keeps track of the revision history of a document – when and who made a specific change. Google Docs also offers chat, suggesting and commenting features.

### **Sample Teamwork Task Specification**

- Form your team of 2-3 members.
- Each team is required to collaboratively analyse a technology misuse case and identify measures that may be taken to prevent the misuse.
- Discuss and write your report using Google Docs.
- Teamwork grades consist of:
  - Group grade for the final report, revision history, comment and discussion.
  - Individual grade based on peer reviews of your contribution.
- Failure to contribute in a team project will result in zero mark for the task.

**Figure 2:** A sample task specification for an online collaborative project.

#### *Challenge 2:*

*Design a teamwork task specification for a topic relevant to your lesson. Specify the group size, expected outcomes, online collaboration tool, grading scheme and consequences of not participating in the teamwork.*

### **Sample Team Agreement**

- Project title and due date
- Project outcomes and deliverables
- Team members, contact information and member expertise
- How to communicate and how frequent
- Project tasks, milestones and due dates
- Responsibilities of members and deliverables
- Conflict management procedure

**Figure 3:** A sample team agreement for an online collaborative project.

Peer review assignments is a practice where students provide feedback on other student assignments. The peer review process grants students the opportunity to share their analytical points of view and help other students improve their work. It is advisable to form peer review groups of three students. The peer review process can be either anonymous or identified. The review process entails the critical thinking skill when the students judge and appreciate other's work and provide suggestions to refine the assignment. Not only that, the commenting process polishes the communication skills when students learn the polite and diplomatic way of voicing their opinions without disrespecting other people. The feedback rubrics can be either scale-based criteria, open-ended questions or both. Figure 4 provides a sample feedback rubric with open-ended questions. PeerMark in Turnitin ([turnitin.com/](https://turnitin.com/)) and Peergrade.io (<https://www.peergrade.io/>) are online platforms that support the peer review assignment.

**Sample Feedback Rubric with Open-Ended Questions**

- Is the selected case soundly relevant to technology misuse?
- Are the proposed measures to prevent technology misuse reasonable?
- Do the in-text citation and references format comply with APA format?
- Which is the best part of the submission?
- What are the things that can be improved, and how?

**Figure 4:** A sample feedback rubric with open-ended questions.

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*Challenge 3:*

*Develop a feedback rubric for the task in Challenge 2. You may choose to specify either scale-based criteria, open-ended questions or both.*

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#### **4. Be present but plan your time**

Regardless of where the class takes place, the best thing the teacher can do is to be mentally present with the students. An online class requires continuous interaction to keep the students challenged and engaged. The teachers may show their presence several times a week. An even better practice is to communicate to students when you will be present and when you will not, almost similar to the consultation hours. Keeping your promise and ensuring your presence during the stated time is important to establish the trust and bond with your students. Although instructor presence is crucial to the success of the online class, responding to every post 24/7 can really consume you. Furthermore, if the teacher comments on every post, students tend to write their posts for the teacher, and it turns out to be one-to-one interaction. Thus, the teacher should wisely manage time and choose what you respond to. When determining the type and frequency of feedback, consider what the students really need and how they will gain the greatest benefit from the online class.

#### **5. Provide constructive feedback**

If the online class requires students to submit work online, the instructor should make constructive feedback on the work. As a rule of thumb, the feedback should sandwich negative comments between positive comments for the optimum effect. A point to note is that instructors should never reprimand a student in the discussion board. These comments should be conveyed with constructive feedback during grading or through a personal message. Besides that, also provide constructive suggestions to improve the student's work. A reasonable guideline to follow is to grade all assignment no later than one week after the due date.

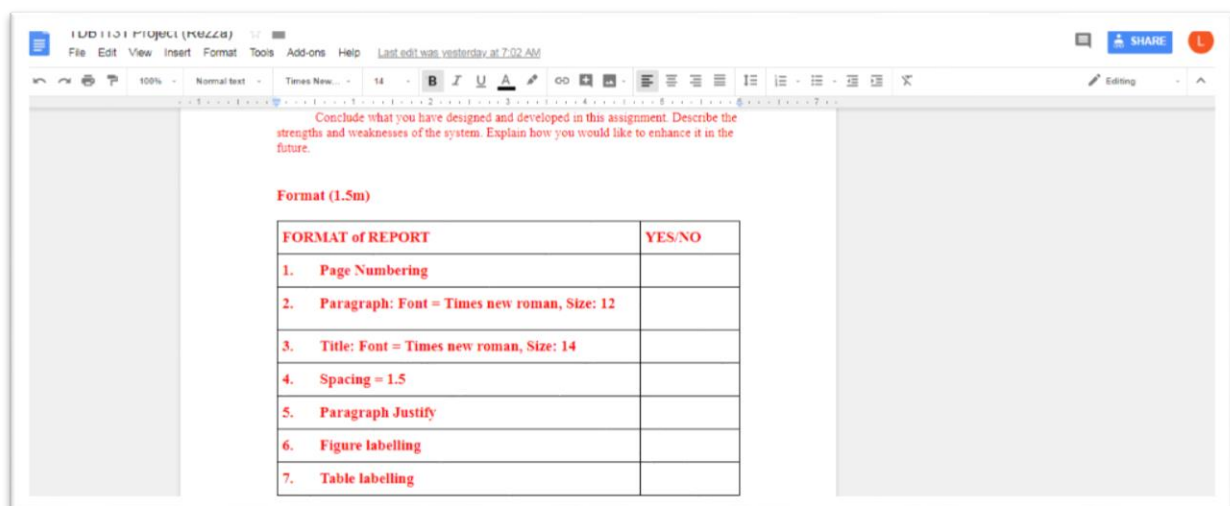
- ☆ Tell your expectation
- ☆ Chunk the lesson
- ☆ Implant interaction into curriculum
- ☆ Be present but plan your time
- ☆ Provide constructive feedback

## CASE STUDY

There were many holidays (Labour Day, General Election, First Ramadhan) during Trimester 3 2017/18, especially on Wednesdays and Thursdays. My students from the subject TDB1131 Database Systems told me that they faced difficulty in discussing and completing the group project since everyone was away from the campus. In order to cope with the situation, I have created a Google Docs for each group and shared with them. I have also briefly explained the benefits of using Google Docs as the collaborative tool in a group project and demonstrated how to use the features in Google Docs especially commenting.

When I showed the Google Docs in the class, the students' responses were very excited and positive. "It would be really great if other group projects also use this tool," a student said. "Good! We can see each other's work and progress in the document. No more worries that my group members do not send their parts to me for compilation. Now everything is in one place!" another student commented. Some of them immediately started typing in the Google Docs for their group project.

I have also shared some examples of each section in the Google Docs. Not only that, the assessment criteria were also presented in the document to serve as a reminder for students. Figure 5 shows the assessment criteria for formatting in Google Docs. The students were keen on the assessment criteria as it also helps as a checklist for them to ensure their work conforms to the assessment criteria.



Conclude what you have designed and developed in this assignment. Describe the strengths and weaknesses of the system. Explain how you would like to enhance it in the future.

**Format (1.5m)**

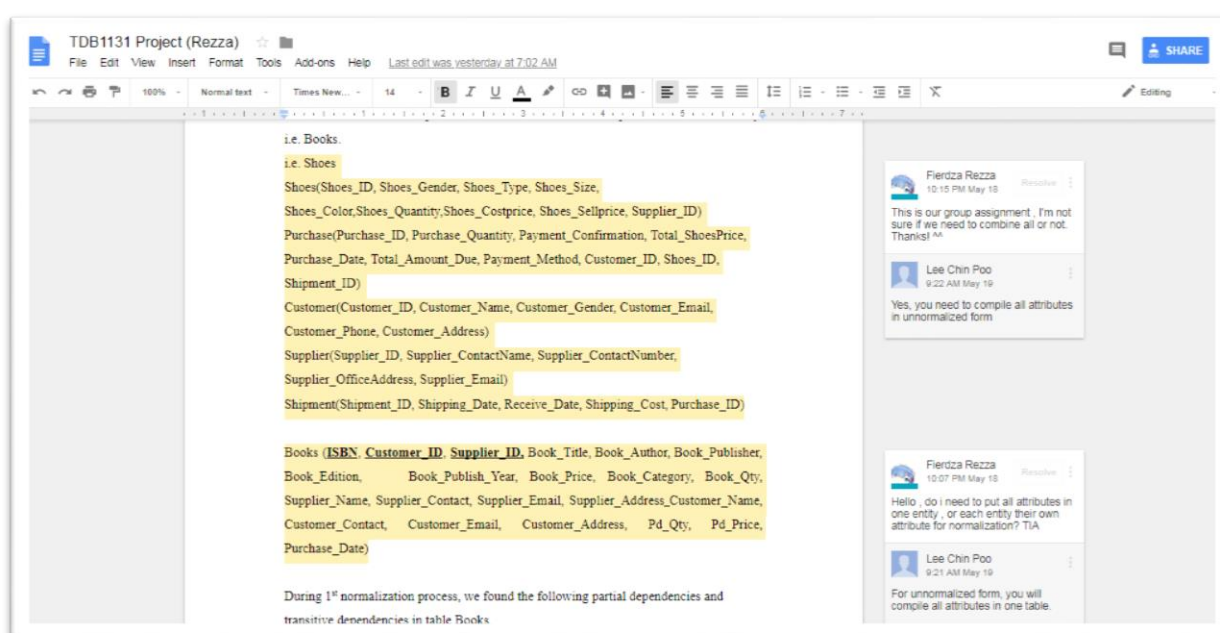
FORMAT of REPORT	YES/NO
1. Page Numbering	
2. Paragraph: Font = Times new roman, Size: 12	
3. Title: Font = Times new roman, Size: 14	
4. Spacing = 1.5	
5. Paragraph Justify	
6. Figure labelling	
7. Table labelling	

*Figure 5: The assessment criteria were presented in Google Docs.*



Throughout the trimester, the students actively discussed and co-authored their group project. A noticeable difference from previous practice is that, using Google Docs, all group member collaborated on every section. They improved their group members' work and increased the consistency throughout the project report. In addition to that, the students that were normally shy to raise questions in the face-to-face class were more encouraged to ask questions in the online platform. Figure 6 shows the students' inquiries in Google Docs.

At the end of the trimester, I seek for the students' point of view regarding the online collaborative tool. "Miss, thank you so much for exposing us to Google Docs. We were able to complete the group project in time although we were not physically on the campus throughout the long holidays. The best thing is no compilation is required!" a student commented. It was also noticeable that the overall quality of the submitted project reports was apparently better than the project reports of the same subject from previous trimesters. There was a significant improvement in the consistency and correctness of the report.



*Figure 6: The comments by the students in Google Docs.*

## Platforms for Online Classes

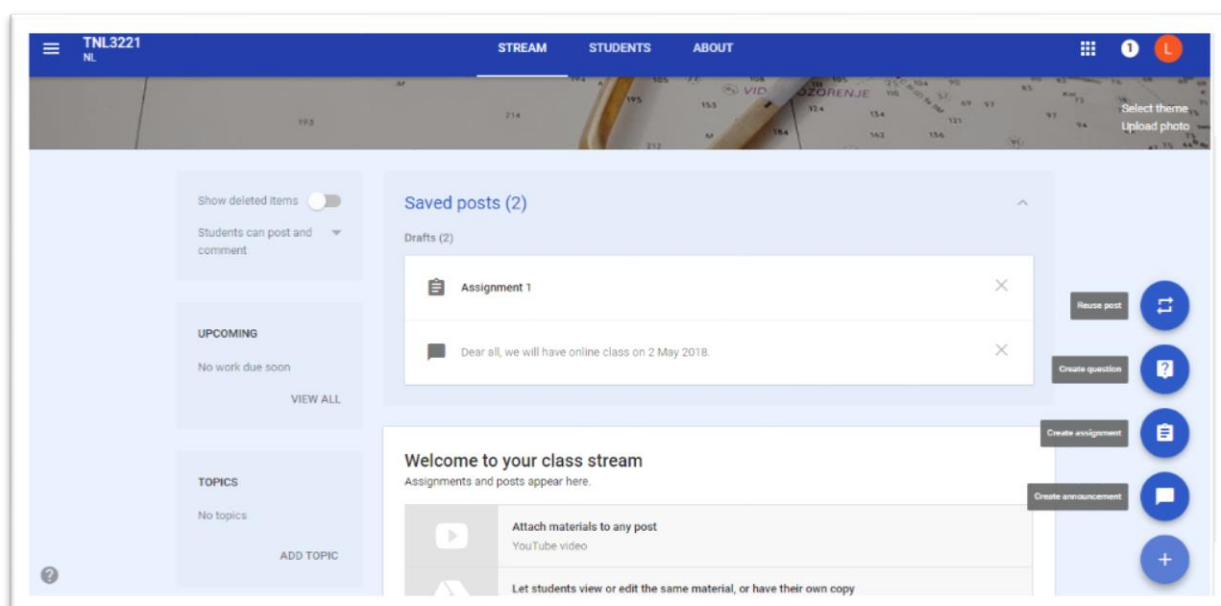
### Google Classroom

If you have all your course files in Google Drive, then Google Classroom (<https://classroom.google.com/>) is a great choice! Google Classroom, developed by Google, is a free online Learning Management System. Google Classroom requires users to log in using Gmail account. Google Classroom offers a rich spectrum of features and supports various file types. Below are some of the key features of Google Classroom:

- ☆ Class stream: is the wall of the class and all updates and activities are displayed on the wall. Figure 7 shows the class stream of Google Classroom.
- ☆ Topics: to create a thread for each topic in the course. For every topic, teachers may post announcements, create assignments, create questions or reuse post.



- ☆ **Announcement:** to post announcements to share with all students. Teachers may share various file types (word documents, presentation slides, compressed folder, image, video, audio, and etc.) in a computer or Google Drive, YouTube videos, or embed a link to files. Google Classroom provides the options to post the announcement immediately, at a specified date and time or save as a draft.
- ☆ **Assignment:** to release assignment and set the submission deadline. Similar to announcements, teachers may embed various file types and indicate whether to release assignment immediately, schedule a date and time or save as a draft.
- ☆ **Questions:** to create short answer or multiple-choice questions. Teachers may view the report of student answers.
- ☆ **Reuse Post:** a useful feature to import announcement, assignment, question and attachment from other classes.
- ☆ **Students:** teachers may invite students by email address or by sharing the class code. The student will receive an email once the teacher sends the invitation. Once the students join the class, the teacher can send email to individual or group by selecting the email addresses.



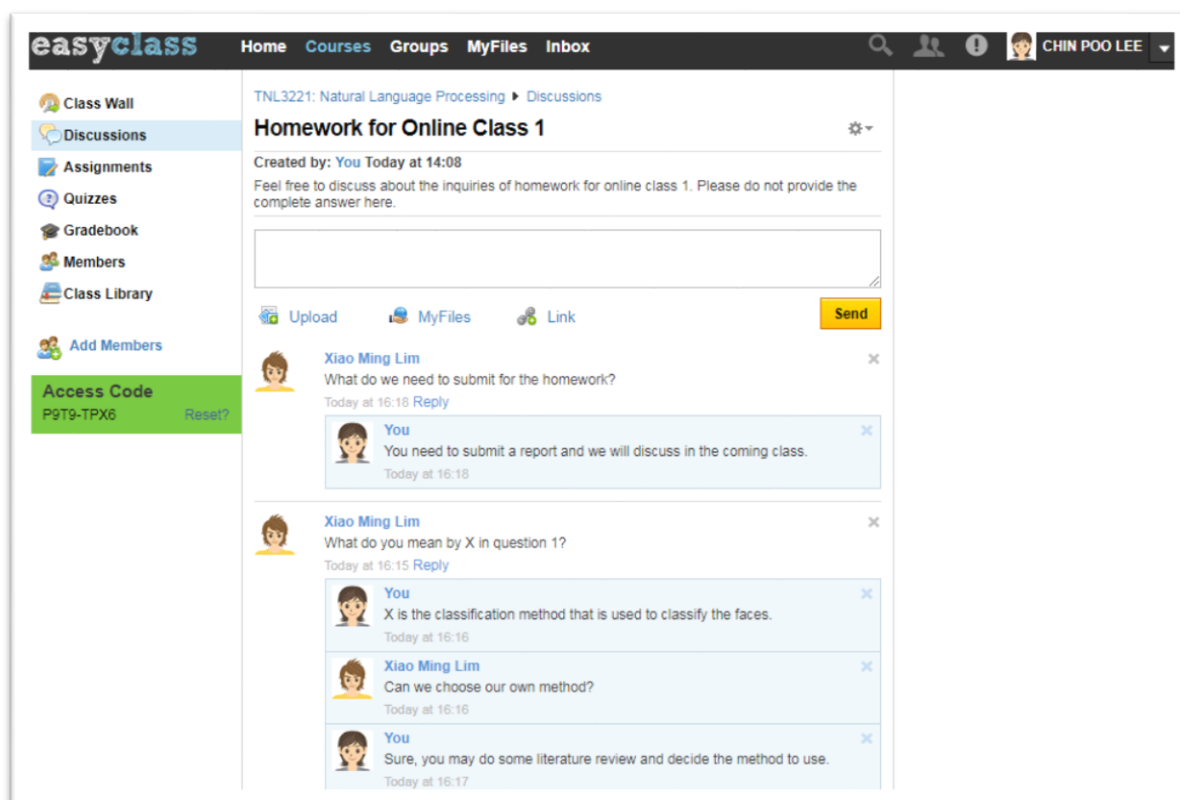
*Figure 7: The class stream page of Google Classroom.*

## Easyclass

Easyclass (<https://www.easyclass.com/>) is another free online Learning Management System that enables teachers to create and manage digital classes. As the name implies, the interface of Easyclass is simple yet complete with the essential features. The following are some of the key features of Easyclass:

- ☆ **Class Wall:** to upload and store the course materials and post announcement.
- ☆ **Discussions:** to initiate and manage class discussions, as shown in Figure 8. The teachers, however, will not receive a notification email for any new discussion post.
- ☆ **Assignments:** to release assignments, specify the marks for the assignment and set the submission deadline.
- ☆ **Quizzes:** to upload quizzes and set the deadline.

- ☆ Gradebook: to assign scores and give comments to assignments and quizzes. The teachers may choose to either publish the grade to students. Once the grades are published, students will not be able to resubmit their assignments.
- ☆ Members: to view the members (students) enrolled in the course.
- ☆ Class Library: to manage all uploaded files of the course.
- ☆ Add Members: teachers may invite members (students) by email address or the students may join the course using the access code. The student will receive an invitation email once the teacher sends the invitation.



*Figure 8: The discussion page of Easyclass.*

## CONCLUDING REMARKS

Transferring some of the brick and mortar classes to online classes is a stepping-stone to successful online education. The flexibility, convenience and content richness offered by online classroom break the barrier of the physical classroom and make learning beyond the classroom. There are some good practices to adhere in order to excel in online class: 1) tell your expectation – inform your students about the topic to be covered, preparation and expected outcomes of the class, 2) chunk the lessons – divide contents into small sections and incorporate text, audio, video, discussion, collaboration and hands-on exercises, 3) implant interaction into curriculum – enhance interaction using case study, group work, discussion, collaboration and peer review assignments, 4) be present but plan your time – be active in discussion and engage all students in the discussion, and 5) provide constructive feedback – give positive comments and clearly suggest ways to improve. Happy teaching online!

## REFERENCES

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63(2), 81.

Neo, M. (2017). Authentic Learning for 21st Century Teaching – Keynote address, 5<sup>th</sup> International Conference on Information and Communication Technology (ICOICT 2017), Malacca, Malaysia, May 17-19, 2017.

O'Malley, S. (2017, July 12). Effective Teaching Online. Retrieved April 1, 2018, from <https://www.insidehighered.com/digital-learning/article/2017/07/12/7-guidelines-effective-teaching-online>

Pelletier, P. (2013, September 20). What Online Teachers Need to Know. Retrieved April 1, 2018, from <https://www.facultyfocus.com/articles/online-education/what-online-teachers-need-to-know/>

## ADEPT, TALENTS and ADEPT i-TEACH Retreats



# 4

## **WOWing the 21st-century tertiary students**

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## Abstract

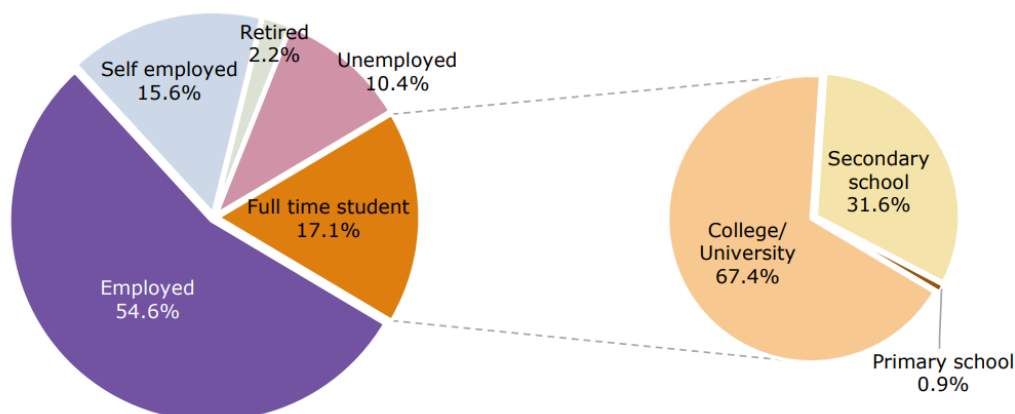
The multitude of numerous educational technologies that is able to engage the students, promote interactive and student-centered learning have popularised the blended approach to learning across tertiary institutions in Malaysia. Blended learning promotes a student-centered learning environment via active student-to-student and student-to-educator interactions, as well as an emphasis on engaging the students in the classrooms and outside of the classrooms with the aid of technology and the Internet. Using these educational tools can not only ease the teaching and learning endeavours of tertiary educators and students, but also bridged the distance amongst students and their educators. Although the adoption of technological tools is widespread across tertiary institutions, its impact on students' learning experience needs to be examined systematically in order to create a cohesive and supportive learning environment. This study presents and summarized the impact of using Padlet, an application for creating online bulletin boards to display information, in real-life tertiary classrooms. As a result, an increase in students' engagement and participation were observed.

**Keywords:** *Student-centered learning, Technology-enhanced learning environment, Blended learning, Higher education*



## Introduction

Embracing the use of technology in higher education is inevitable, as the current generation of students is extremely technologically proficient. The 18 to 24-year-olds generally exhibit a high commitment towards the adoption and use of new technological tools, hence tertiary educators are required to keep themselves abreast with the recent advancements in technological trends, and use suitable tools to reach out to their students (Jambulingam, 2013). The Malaysian Communication and Multimedia Commission (MCMC, 2017) reported that full-time students make up 17.1% of the Malaysian Internet user population, out of which 67.40% were tertiary students (Figure 1).



*Figure 1. Distribution of Malaysian Internet Users by Educational Level (MCMC, 2017)*

Notably, the MCMC (2017) examination of Malaysian Internet users' online activities found that 67.7% of the respondents surf the Internet for learning-related purposes. In addition, there has been much emphasis recently for the implementation of online and blended learning in Malaysia's higher education institutions, as detailed in the Malaysia Education Blueprint 2015-2025. In fact, the blended learning pedagogical approach combining both online learning and traditional face to face instructions are set to be implemented in all higher education institutions in the country.

## Technology-enhanced learning environment

The positive impact of technology-enhanced learning environments has been espoused by various academics and researchers throughout the years. There is evidence that the use of technology in the classrooms has the potential to improve the teaching and learning endeavours of educators and students compared to traditional classroom environments (Twiggy, 2003). In comparison to teacher-centered classroom delivery, such blended learning environments increased control and self-directedness among the students, and require them to take more responsibility for their learning, all factors consistent with the recommendations of adult learning theory (Knowles, 2012).

The positive impact of the effective use of technology in higher education has been well documented in various studies. Khan (2015) and Carruthers (2016) affirmed the positive impact of using technology in the classrooms of higher education, such as increasing collaborative learning and students' problem solving skills. Lin and Hwang (2018) review of journal publications from the year 2008 to 2017 based on technology-enhanced learning models found

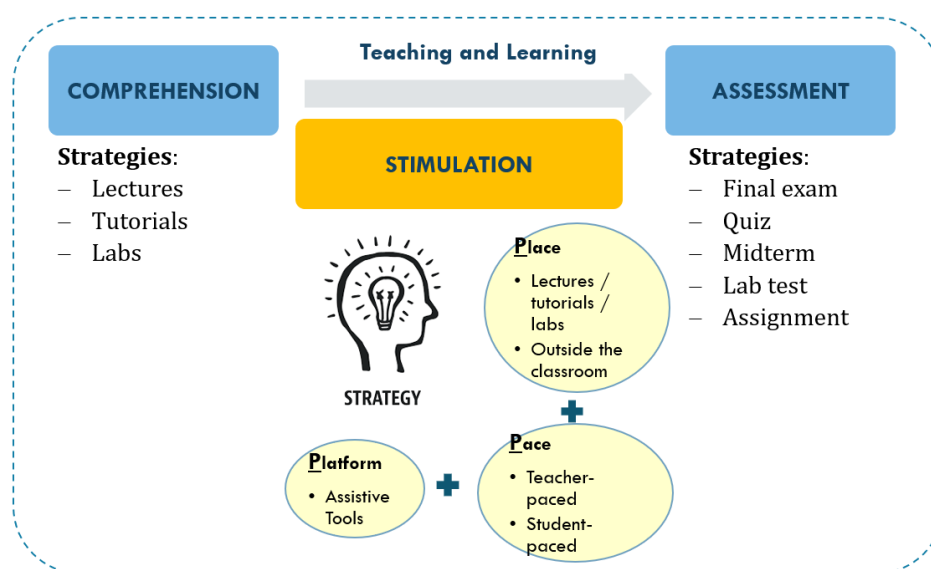
that the implementation of flipped medical classrooms has grown tremendously, notably the uploading of instructional videos on learning management systems and online interactive discussions. In a different discipline, similar benefits were also observed in English language classrooms (Kazakoff, Macaruso, & Hook, 2018).

The Bring-Your-Own-Device (BYOD) open policy of students using their own technological devices, in particular mobile devices, to support their learning endeavours is a norm across the tertiary landscape today (Afreen, 2014). The rapid growth of mobile devices, for instance, has seen students and educators actively using their smartphones and tablets across the campuses. Buabeng-Andoh (2018) noted the importance of mobile devices in supporting the learning activities of nursing undergraduate students, in particular, the significance of perceived usefulness and attitudes of the students toward the use of mobile technology as key predictors of mobile learning.

Across the tertiary education community, flipped classrooms have gain prominence and acceptance by both educators and students alike. The Higher Education Academy defines flipped learning as an approach to teaching and learning where students were introduced to the learning materials and were expected to study prior to classes, with face-to-face classes being used for collaborative and problem-solving activities designed to deepen students' understanding (Higher Education Academy, 2017). The benefits of flipped classes with the aid of technology are well documented, such as the enhancement of students' self-regulatory skills and learning performance (Shyr & Chen, 2018; Thai, De Wever, & Valcke, 2017).

## Methodology

This study proposed a framework designed to aid tertiary educators when designing teaching and learning activities with the aim of achieving a student-centered learning environment. The emphasis proposed in the framework is the design and delivery of teaching and learning activities, named Stimulation Activities, prior to assessing the students (Figure 2). Stimulation activities are prioritized as they aim to strengthen students' understanding through a series of well-designed learning activities. As such, continuous learning beyond the classrooms can be achieved.



*Figure 2. The student-centered learning framework*



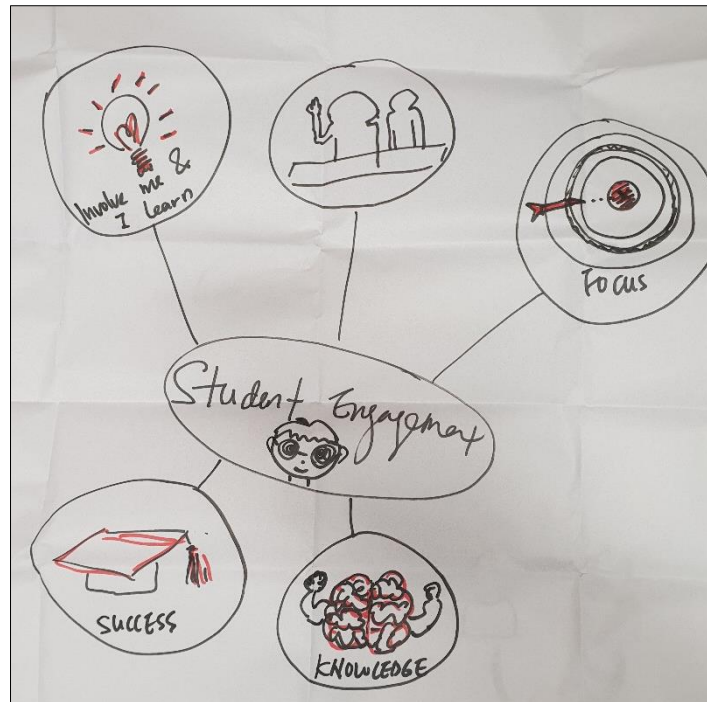
In the event where technological tools are utilized, the framework suggests that educators take into consideration three (3) prevalent factors when designing the stimulation activities:

- i. Place, i.e. whether the activities designed will be conducted in the classrooms or outside the classrooms.
- ii. Pace, i.e. whether the pace of the particular activity is controlled by the educator or students in general.
- iii. Platform, i.e. the technological tool(s) selected to aid the implementation of the activities.

The stimulation activities can be either a pre-comprehension stimulation or post-comprehension stimulation. For classes that deliver theoretical-based subjects, pre-comprehension stimulation activities are recommended. For instance, a lecturer may upload online materials prior to her class, and provide additional guidelines for accessing or viewing the materials, if necessary. Post-mortem activities can be conducted during classes to gauge students' understanding. For classes where the subjects are rather complex and technical, such as mathematics or programming, post-comprehension stimulation is recommended. For example, a lecturer may facilitate discussions amongst the students in the classrooms to identify common areas where students lack understanding, and provide additional assessments to enhance and strengthen students' understanding with a focus on that weak subject area.

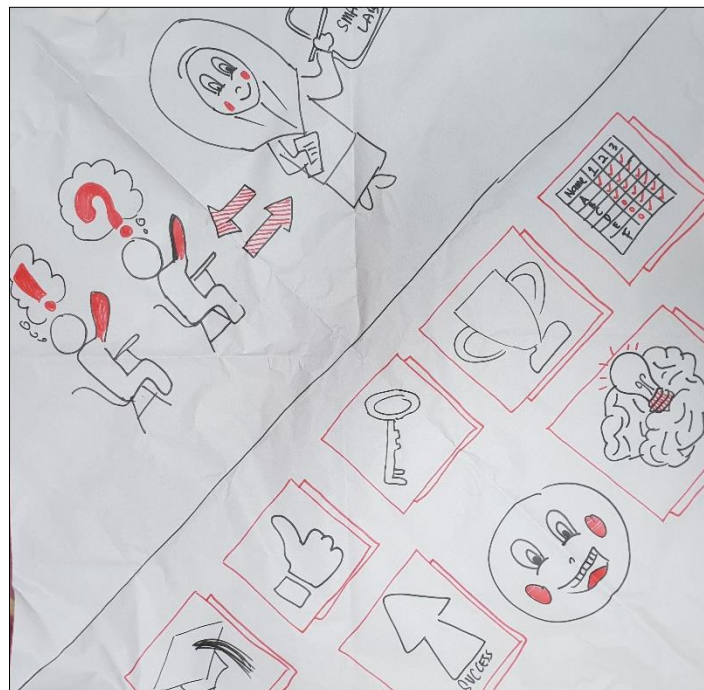
Educator controlled pace denotes any learning activities where the educator sets the schedule and also the duration for students to complete the activities. Hennessey (2017) proposed two ways for students to control the pace of the learning activities. Firstly, the through the uploading of educational videos on platforms such as YouTube, thereby allowing students the flexibility to view, pause, or rewind videos as often as desired. Secondly, allow students adequate time to complete assessments or learning activities outside the classrooms. Here, we highly recommend student controlled pace as it allows students of differing learning styles to learn at their own pace.

It is important to ensure the materials are accessible prior to seeing the students in the classrooms as it can be the key factor to an effective and impactful learning experience. Few blended learning workshops were conducted for the Multimedia University academics to promote this idea, known as the WOW series workshops organized by ADEPT. The workshop participants were asked to present their views and suggestions to support the learning process of their students. Based on the observation, participants agreed on the importance of continuous learning so that students can better engage with the subjects, and better prepare for their final assessments (Figure 3).



**Figure 3.** Participants' presentation during WOW series workshop

Some of the participants also recommended stimulating not only the comprehension aspects, but also to gauge students' knowledge and understanding via assessment stimulations. Examples of suggested activities are online quizzes, and case study reviews, among others (Figure 4).



**Figure 4.** Participants' presentation during WOW series workshop

## A case study of using Padlet to engage the students

Two lecture groups were selected in this observational study, based on a pre-designed teaching plan. However, different approaches were applied depending on each group's performance and traits. Observations were made on the two groups of students for one subject taught in one trimester with moderate class size. The first group (referred to as Group A) and the second group (referred to as Group B) has 64 and 60 number of students respectively. The subject involved was a theory-based computer application subject offered to business and accounting students. In general, the students will learn the fundamental of computer functions, its applications, computer safety, and Internet services.

## BLINGO game: Getting to know students' traits

In order to gain a better insight into each group of students' general traits, a BLINGO game (Figure 5) was designed and conducted in the first lecture class. The BLINGO was printed and distributed to the students, and they were required to move around in order to find the answers and to submit the answers immediately to the lecturer after they have managed to get all 5 correct answers in a row (either horizontally, vertically, cross-length, etc. as long as in one straight line). All questions were related to the class and subject. Winners were rewarded at the end of the game, aimed to encourage and motivate the students to participate actively.

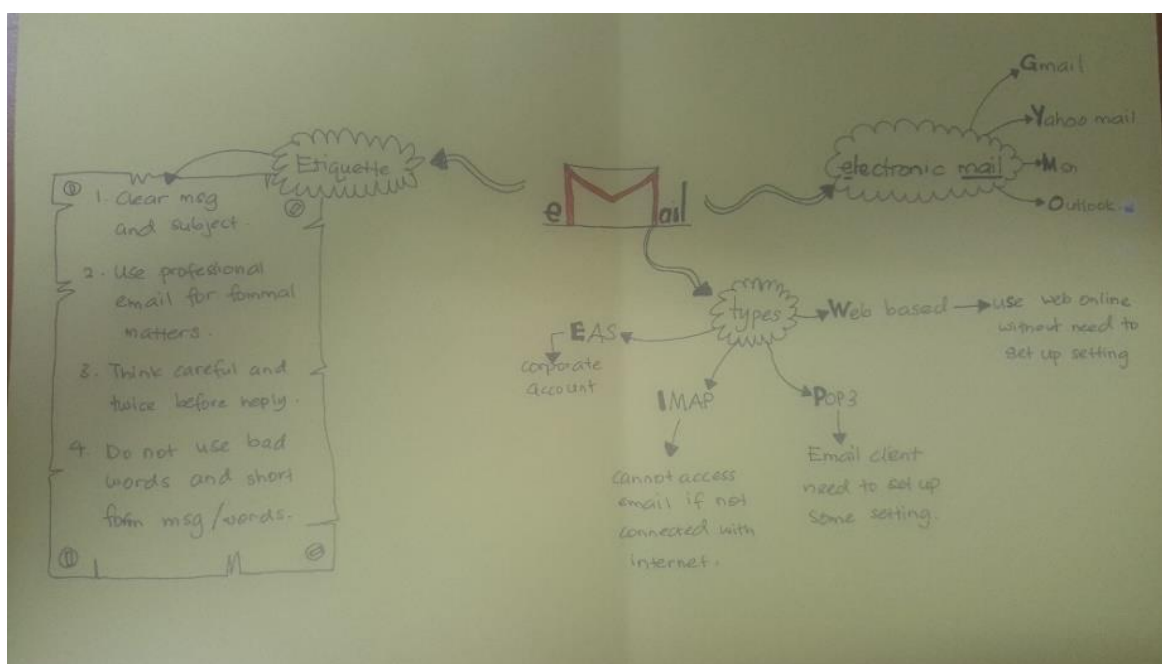
<b>Let's Play BLINGO</b>				
Name : _____		Student ID : _____		
Group : _____		Date : _____		
Write your answer in the box accordingly. Submit straight away to the lecturer if you manage to get all 5 answer correct in a row (either horizontally, vertically, cross, or etc as long as in 1 straight line). All questions are related to this class and this subject.				
B	L	N	G	O
Write a classmate name who has student ID that starts with 117.	Students will be barred if attendance is below ___%.	"System Software" is discussed in topic _____.	What is the edition for our main textbook?	What is Ms Diyanah's office phone number?
Write 1 classmate name that has no letter "N".	Are we going to learn coding in this subject? (Yes/ No)	Write classmate name who is using iPhone.	Name the venue next to our class (either to left or right).	What is coursework percentage for Lab Test?
How many lab test do we have for this subject?	What is coursework percentage for Assignment?	What is the subject code for Computer Applications?	Digital Lifestyle" is discussed in topic _____.	"System Unit" is discussed in topic _____.
What is Ms Diyanah's email address?	How many topics in this subject?	"Computer Security" is discussed in topic _____.	What is coursework percentage for Midterm?	Lab class starts in week _____.
"Using the Internet" is discussed in topic _____.	Final exam first day is on _____(date)_____.	What is coursework percentage for Quiz?	Write a classmate name who is wearing spectacles.	Who was born in December?

*Figure 5. BLINGO game sheet*

Based on the general observation from this activity, Group B was more reserved and subtle compared to Group A. This general personality or trait was vital in planning and adapting the stimulation activities for encouraging and instilling into the student's self-learning and self-directedness habits.

### ***Barriers in communication and participation***

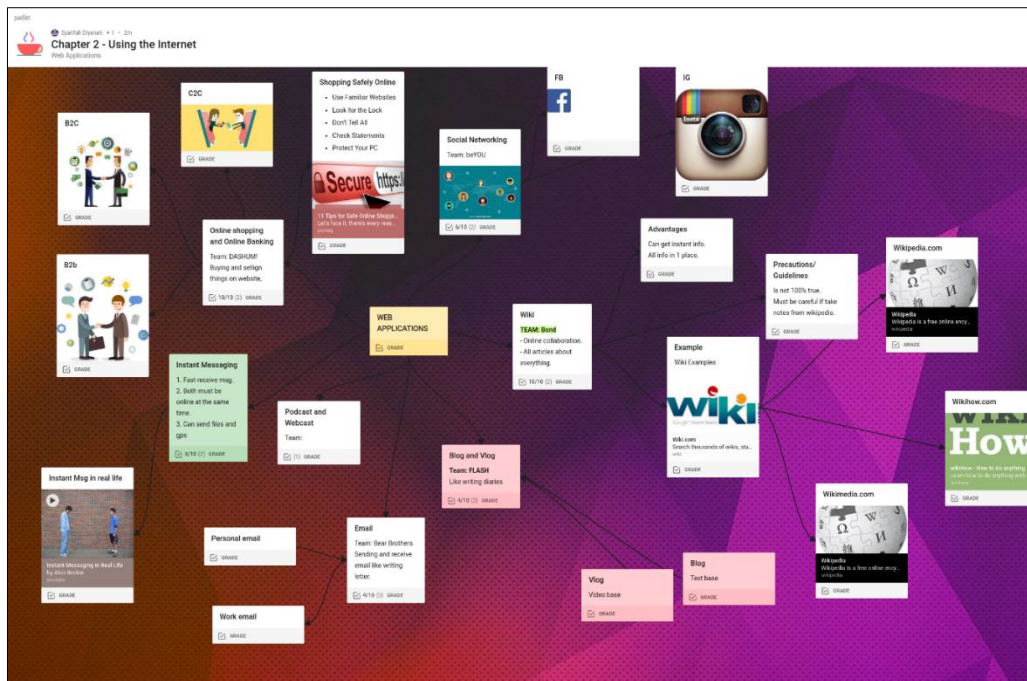
A group discussion activity named POWWOW was carried out later in week 2 to exchange views on “Topic 2: Using the Internet”. As expected, students in Group A were able to explain in general the various types of Internet services during the class discussion, while Group B was reluctant to contribute throughout this class activity. The group discussion for Group A was lively and most of the students were actively participating in the “debate” and later translated their conclusion on basic mind map using A4 paper (see Figure 6).



***Figure 6. Screenshot of sample 1 - student’s mind map.***

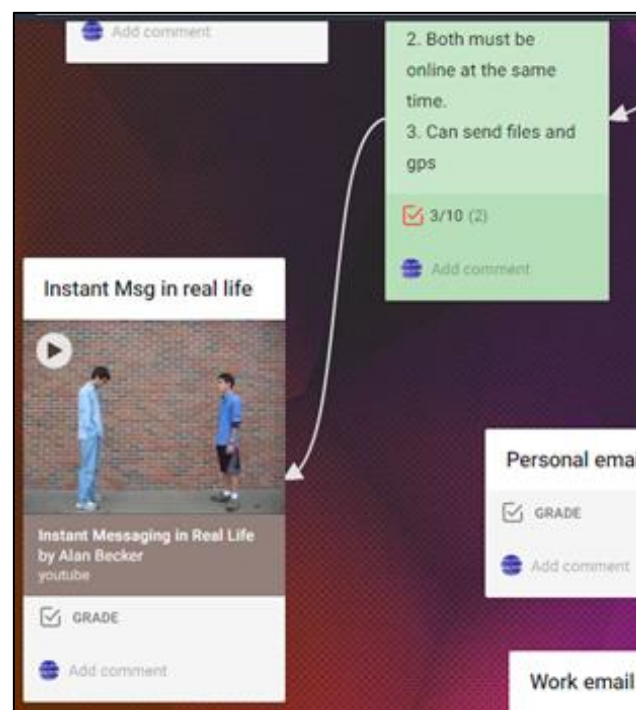
On the other hand, Group B was expected to be more reserved, thus Padlet was introduced during the POWWOW activity to gain greater participation and engagement. Fear and self-esteem were two major determinants that may discourage students from participating in class activities (Aziz, Quraishi, & Kazi, 2018). This is especially true for local students in large classes.

Padlet is believed to be a good stimulation tool as it serves as a medium for students to get connected with easy access to upload information, especially as information can be submitted anonymously. Students in Group B pitched their creativity and shared information actively on the online Padlet board. Group B became more resourceful as they even looked up for extra information available online and linked it back to their ideas. This was observed to be more successful as the results showed that the inputs uploaded on the Padlet board were from all the students in Group B. The Padlet discussion (Figure 7) became a continuous and consistent learning activity as Group B students were able to access the shared information anytime and anywhere.



**Figure 7.** Screenshot of POWWOW Padlet discussion for Group B

Lecturers were also able to assess students' work or effort and evaluate them accordingly (Figure 8). This is especially useful when lecturers want to collaborate with lecturers that are also teaching the same subject (Figure 9).



**Figure 8.** Lowest mark for Padlet post with only a video shared to their subtopics



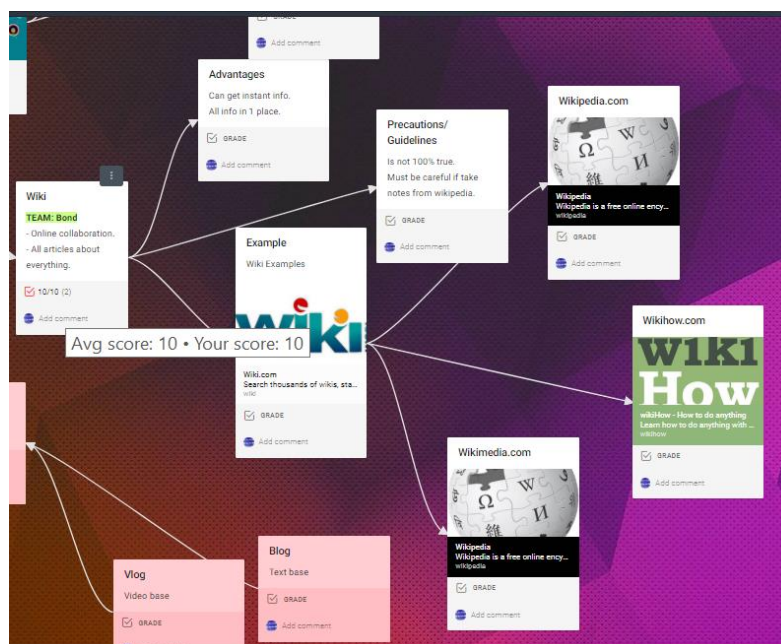


Figure 9. Highest marks awarded to a group that shared more materials

In general, group B was observed to be more interactive when the POWWOW discussion was facilitated using Padlet that allowed peer-to-peer evaluation. The evaluation was a successful reward system where students seem determined to score good points from their fellow friends.

In comparison to Group A, only those students who were outstanding and more vocal were dominating the floor session. Some of the students in Group A felt that they were left behind and distracted. Even worse, they admitted that they do not fully understand the POWWOW class discussion. The post-POWWOW was difficult to handle as the mind map submitted by students were not connected to each other. The educator needs to wrap up and revise the entire concept to assist students to understand how their mind map was linked.

In summary, the teaching and learning process for both groups were made easier with the help of online tools such as Padlet, especially when it comes to empowering the learning process. Students can have continuous and flexible options to access and upload information.

### Challenges and recommendations

Based on this experience, educators are advised to prepare the backup plan of their teaching and learning activities especially when relying on technological infrastructure, as obstacles such as the Internet might be under maintenance and hardware incompatibility might occur.

Educators should also test run the online activities prior to class. This will ensure implementation smoothness and avoid unseen circumstances. Using two accounts, i.e. instructor account and student account to mock the learning activities will be very helpful to foresee the expectations from the students' point of views. In summary, these are some of the common challenges that educators might face when developing and conducting online stimulation activities:

- Hardware facilities are not functioning at 100%.
- Standard operating procedures that require educators to apply the same type of activities for all groups regardless of students' traits in order to comply with OBE and ISO requirements.
- Lack of self-learning culture and awareness among students.
- Time constraint for educators and students to prepare the learning activities, and as well as to master the skills needed to use the selected tool.

## Conclusion

Student-centered learning can be successful with full support from all parties including the institution, administration, educators, and students. This teaching and learning culture requires tolerance, dedication, and effort from all parties. It is thus concluded that students can understand better with learning activities that stimulate critical thinking, creativity, communication, and collaboration.

## Acknowledgment

The authors extend their gratitude to Multimedia University for supporting the study.

## References

- Abdullah, M. Y., Bakar, N. R. A., & Mahbob, M. H. (2012). Student's Participation in Classroom: What Motivates them to Speak up?. *Procedia-Social and Behavioral Sciences*, 51, 516-522.
- Afreen, R. (2014). Bring your own device (BYOD) in higher education: opportunities and challenges. *International Journal of Emerging Trends & Technology in Computer Science*, 3(1), 233-236.
- Aziz, F., Quraishi, U., & Kazi, A. S. (2018). Factors behind Classroom Participation of Secondary School Students (A Gender Based Analysis). *Universal Journal of Educational Research*, 6(2), 211-217.
- Buabeng-Andoh, C. (2018). New technology in health education: Nursing students' application of mobile technology in the classroom in Ghana. *Interactive Technology and Smart Education*, 15(1), 46-58.
- Carruthers, C. B. (2016). *How the Affordances Provided by a Technology-Enhanced Learning Intervention Can Impact the Self-Awareness and Self-Regulation of Students Taking a Community College Foundational Mathematics Course* (Doctoral dissertation, University of Windsor (Canada)).
- Hennessey, S. (2017, April 14). *4 ways students can control the pace of content delivery*. Retrieved from <http://tiie.w3.uvm.edu/blog/ways-students-can-control-the-pace-of-content-delivery/#.WyDgXUiFMdU>

- Higher Education Academy (2017, May 18). *Flipped learning*. Retrieved from <https://www.heacademy.ac.uk/knowledge-hub/flipped-learning-0>
- Jambulingam, M. (2013). Behavioural intention to adopt mobile technology among tertiary students. *World Applied Sciences Journal*, 22(9), 1262-1271.
- Kazakoff, E. R., Macaruso, P., & Hook, P. (2018). Efficacy of a blended learning approach to elementary school reading instruction for students who are English Learners. *Educational Technology Research and Development*, 66(2), 429-449.
- Khan, S. H. (2015). Emerging conceptions of ICT-enhanced teaching: Australian TAFE context. *Instructional Science*, 43(6), 683-708.
- Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2012). *The adult learner*. Routledge.
- Lin, H. C., & Hwang, G. J. (2018). Research trends of flipped classroom studies for medical courses: a review of journal publications from 2008 to 2017 based on the technology-enhanced learning model. *Interactive Learning Environments*, 1-17.
- Malaysian Communications and Multimedia Commission (MCMC) (2017). *Internet users survey 2017* (ISSN 1823-2523). Selangor Darul Ehsan: Author
- Mustapha, S. M., Rahman, N. S. N. A., & Yunus, M. M. (2010). Factors influencing classroom participation: a case study of Malaysian undergraduate students. *Procedia-Social and Behavioral Sciences*, 9, 1079-1084.
- Shyr, W. J., & Chen, C. H. (2018). Designing a technology- enhanced flipped learning system to facilitate students' self- regulation and performance. *Journal of Computer Assisted Learning*, 34(1), 53-62.
- Thai, N. T. T., De Wever, B., & Valcke, M. (2017). The impact of a flipped classroom design on learning performance in higher education: Looking for the best “blend” of lectures and guiding questions with feedback. *Computers & Education*, 107, 113-126.
- Twigg, C. A. (2003). Improving quality and reducing cost: Designs for effective learning. *Change: The Magazine of Higher Learning*, 35(4), 22-29.



# 5

## **The effectiveness of e-Learning Tools in Computer Programming Subject**

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## Abstract

The effectiveness of implementing e-Learning tools via a concept known as Flipped Learning on a computer programming subject is discussed here. The subject teaches the C-Language and involves lots of computer programming assignments and activities. The subject is also classified as one of the highest failure-rate subjects in the faculty. The study involves the investigation of two terms of the subject where students were taught using traditional methods versus flipped learning, blended learning and the incorporation of some e-Learning tools in the teaching and learning process. Data of these two approaches were compared and analyzed statistically to determine the significance of improvement in the e-Learning approach. Results show there is a significant decrease in failure rate from an average of 33.2% to 12.4%. Average marks have also increased from an average of 58.51% to 70.25%. The results, although inconclusive, show a dramatic increase in students' performance with the application of blended learning, flipped learning and incorporation of e-Learning tools.

**Keywords:** Blended Learning, Flipped Learning, e-Learning tools, computer, engineering

## 1. Introduction

A study was conducted on the effectiveness of implementing e-Learning tools in a computer programming subject. This fundamental (core) subject of the Bachelors of Engineering majoring in the Computer Program at the Faculty of Engineering at Multimedia University is offered once annually and is attended by 200 to 300 students per semester. Two terms of the subject were investigated. In the first term, henceforth referred to as *Term 1*, data for the subject from 2010/2011 to 2016/2017 cohorts were used. In the second term, henceforth referred to as *Term 2*, the subject was taught during the 2017/2018 cohort and subjected to blended learning approaches. The students' coursework marks and exam results are analyzed using statistical tools to determine if there is a significant improvement with the application of blended and e-Learning tools.

## 2. Background Information

In this section, we describe the computer subject and the methodology of teaching this subject prior and up to the time of this study.

### 2.1 *Subject of Interest*

The subject of interest (SOI) is an introductory subject on C-programming offered annually in trimester 1 at the Faculty of Engineering (FOE) at Multimedia University. Due to the high number of students taking the subject, 4 lecturers are usually appointed to teach it. It is to be noted that for Term 2 whose data is used in this study, the author was at the time also appointed as the subject coordinator i.e., the head lecturer who is in charge of work delegation and planning of the entire subject.

In previous years, the SOI is categorized as one of FOE's high failure-rate subjects. Going back to data as far back as 2010, an all-time low passing rate was observed in cohort 2011/2012 where the failure rate was as high as 49.8%. The subject coordinator at the time suggested in the postmortem report to "change the programming language from C to Python as students were not able to grasp the language". However, this suggestion was rejected in the following Academic Development Committee (ADC) meeting as the language was utilized by many of the other computer subjects and a change would affect the syllabus of other subjects.

In determining the achievement of the student, the subject is assessed using 3 methods: 2 assignments, one midterm exam and a final exam. Details of the assessment are given in Table 1.

Table 1: Assessment for Subject

Type of Assessment	Description
Lab Assignment 1	Takes place in a computer lab. Given 1 hour to complete. In groups of 2. Worth 10% of final marks.
Lab Assignment 2	Takes place in a computer lab. Given 1 hour to complete. In groups of 2. Worth 10% of final marks.
Midterm	Given in a controlled setting in an exam hall. Given 1 hour to complete. Worth 20% of final marks.
Final exam	Given in a controlled setting in the exam hall. Given 2 hours to complete. Worth 60% of final marks.

From Table 1, it is shown that the coursework marks, which accounts for 40% of the subject, comprises of Lab Assignments and the midterm exam. The final exam constitutes for 60% of the final marks. A final mark of >50% is required in order for a student to pass the subject. A score below 50% basically means the student will have to retake the final exam and, if he/she should happen to fail again, would have to repeat the entire subject in order to complete the degree.

## 2.2 Teaching Approach

The 21st Century classroom, as illustrated in Figure 1, is a highly sophisticated environment for teaching and learning. Gone are the days where students were subjected to a projector and PowerPoint slides, but classrooms now also utilize computers, mobile phones, tablets, and gadgets, not to mention elaborate software that can deter as well as capture the students' attention. But it is not only the technology that has reached new heights in this era, teaching pedagogies have also developed and advanced to match the technology. The two combined is what basically constitutes *Blended Learning*. The objective: the student will learn more efficiently (Thorne, 2003).

The *Blended Learning* approach has been introduced in the faculty since 2015 and was slowly incorporated into the teaching system by generally introducing the use of multimedia tools and activities as well as elaborate assessment schemes. *Bloom's Taxonomy*, illustrated in Figure 2, was introduced even earlier in 2012 and used as a guide to clarify course objectives which especially assisted lecturers in categorizing exam questions when setting them and ensuring all course objectives are covered (Lorin et al., 2013). The latest addition to the teaching pedagogy is *Flipped Learning*, a concept which utilizes the Face-to-Face (F2F) time in the classroom for discussions and activity, while the student may pour over notes and assignments pre- and post-F2F sessions. This is illustrated in Figure 3 (Bergmann & Sams, 2014). The *traditional* approach term, referred to in this paper, is thus defined as the methods prior to the implementation of *Blended Learning*, when students were subject to "traditional" teaching standards. In this scenario, a teacher would generally give lengthy lectures in front of class assisted by the projector and/or by writing notes on the black/whiteboard. This is especially true of lecturers in their mid-50's who were educated in a similar fashion and found it to work very effectively. While younger teachers (though not much younger) may use computers and utilize presentation software more often, they still teach the material to the students with minimal interaction and minimal use of the tools that the X generation is so familiar with and have the potential to use in a classroom (Ritchie, 2002).

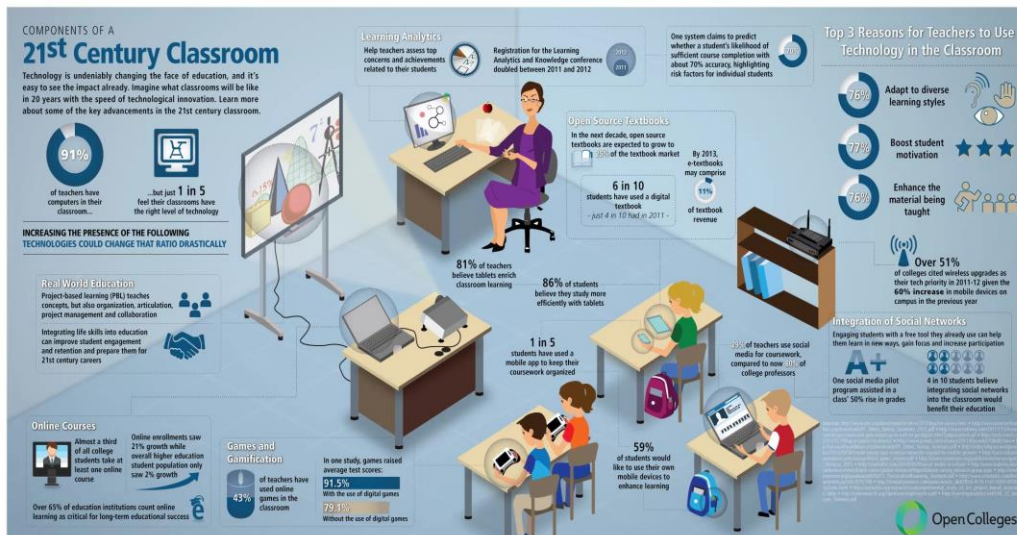


Figure 1: The 21st Century Classroom (retrieved from <http://www.youngupstarts.com/2012/07/25/infographic-facts-about-the-21st-century-classroom/>).

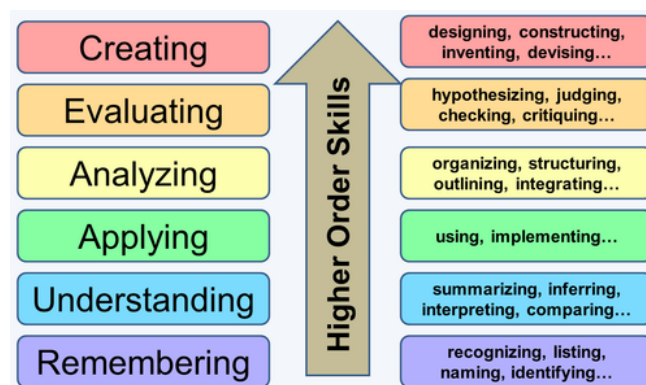


Figure 2: Pyramid scheme representing the gist of Bloom's Taxonomy (retrieved from <http://ezsnips.squarespace.com/blooms-taxonomy/>).

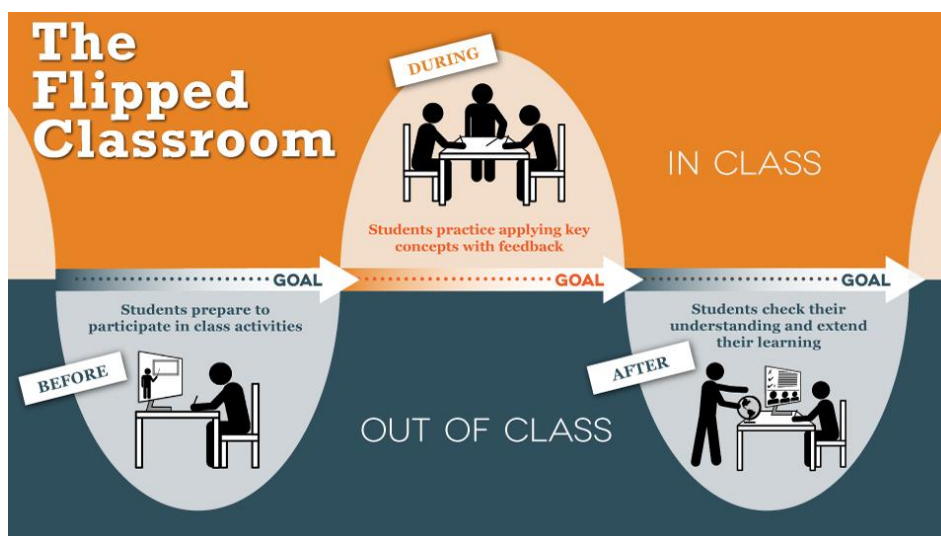


Figure 3: Illustrated Concept of Flipped Learning (image retrieved from <https://facultyinnovate.utexas.edu/flipped-classroom>)

### 3. Methodology

Term 1 subjects were mainly taught using the traditional teaching methods explained in Section 2.2. An additional tool known as Tutorialspoint (retrieved from <https://www.tutorialspoint.com/cprogramming/index.htm>) was also utilized during lecture sessions to assist in the teaching. The tool sits on a website and acts as a compiler for c-programming, thus examples of running programs can be given in lecture and not just in the lab. This can be categorized as an e-Learning tool by itself, however, as previously stated, much of the teaching and learning approach was traditional and the tool was mainly used to give examples in class in an effort to “blend” the class.

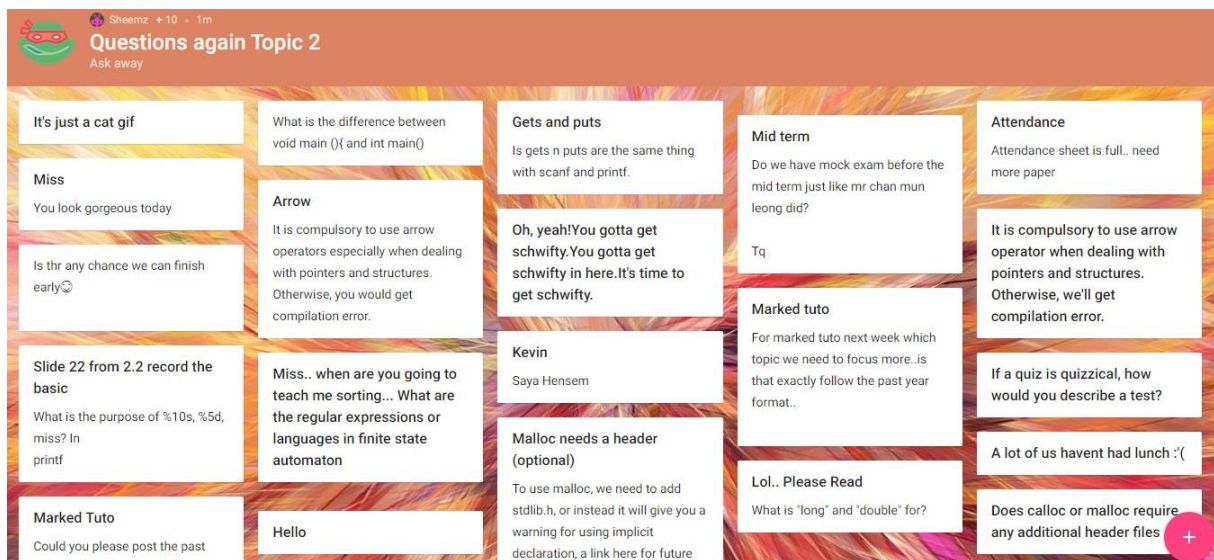
For Term 2, the subject was taught over a duration of 14 weeks, with 2 hours of lecture and 2 hours of lab time attended by the student per week. Out of the 14 weeks, 7 weeks of F2F hours incorporated various e-Learning tools such as *Padlet* (retrieved from <https://www.padlet.com>) and at least 4 weeks of lecture incorporated the flipped learning approach. For the flipped learning sessions, lecture videos were uploaded prior to the lecture with assignments that the students must complete by a certain deadline. The videos were created using the *Screencast-o-Matic* software and usually covered entire topics but ran less than 15 minutes per topic. At the end of each video, a short assignment was given that must be submitted in class, through MMLS (Multimedia University’s Multimedia Learning System), or another e-learning tool. Incentives for submission was usually an attendance mark. The attendance is of prime importance in MMU – an attendance below 80% will barricade a student from sitting the final exams and cause visa renewal problems for international students.

#### 3.1 Padlet

Padlet is a tool that allows anyone to post comments/pictures/videos on an empty page on the internet. The page can be accessed through computers and mobile phones through a simple web address and when projected on the screen, acts like a blackboard. During the lecture, students were encouraged to post their questions on Padlet –if they had any– as the lecture progressed, and the questions can be posted anonymously. This is important as students, especially the locals, are notorious for being extremely reserved, probably due to fear of being ridiculed. The Padlet page was checked every 6-7 minutes for new questions. The lecture was paused to address each question, which usually takes 1 to 5 minutes to explain. A screenshot of the Padlet is shown in Figure 4.

#### 3.2 Screencast-o-matic

Screencast-o-matic is an online recording tool that allows you to easily record your lectures and save them as videos (retrieved from <https://screencast-o-matic.com/>). The software records your voice and/or face as well as what is displayed on your computer screen allowing for a quick creation of a lecture video (see Figure 5). The freeware version allows recordings of up to 15 minutes—ample time to cover one topic in depth. An assignment is given towards the end of the video, and the submission of the assignment ensures that the video was seen and understood by the student. To avoid plagiarism, the assignment is usually of a personal nature (e.g., “Write code to display your name on the screen.”). The videos are uploaded onto YouTube for the students to view at leisure, and discussed the following day during lecture; thus allowing the implementation of flipped learning. An incentive is usually given in the form of an attendance mark for each submission, as the video assignment itself is not part of coursework marks.



**Figure 4:** Screenshot of students asking questions as lecture progressed via Padlet (retrieved from <http://www.padlet.com>).

The screenshot shows the 'Online C Compiler' interface. The code editor contains the following C program:

```

1 #include <stdio.h>
2
3 int main()
4 {
5     printf("Hello, Shima!\n");
6
7     return 0;
8 }
9
10

```

The terminal output shows the compilation and execution of the program:

```

sh-4.4$ gcc -o main *.c
sh-4.4$ main
Hello, World!
sh-4.4$ gcc -o main *.c
sh-4.4$ main
Hello, Shima!
sh-4.4$

```

**Figure 5:** Scene taken from an online lecture video created using screencast-o-matic. In this particular scene, an example program is shown using the online platform: tutorialspoint.



## 4. Results and Analysis

The discussion in this section is divided into two parts. In the first section, we speculate the results based on qualitative analysis. In the second part, we base our discussion based on quantitative results. The results were observed to corroborate each other, allowing us to come to the final conclusion on the significant impact of using Blended Learning and applying e-Learning Tools in the teaching and learning process.

### 4.1 Student Feedback on Implementation of E-Learning tools and Flipped Learning

For Term 2, students gave a feedback of 4.1/5.0 and 4.2/5.0 in the academic evaluation for lecture and tutorial respectively. It is worthy to note that evaluations above 3.5 warrants a congratulatory note from the office of Vice President of Academics. In the Faculty of Engineering, academic evaluations for lecturers are not mandatory and generally the students voluntarily log on to a system to do this. However, academic evaluations are only valid if more than 30% of the class participated. In this case, a total of 118 out of 237 students participated in the process. Out of the 118, 13 students included comments in their feedback. All comments were positive and generally praise for the lecturer. However, one student specifically commented: “online material such as video lectures are very helpful”. The above average feedback score and positive comments imply students enjoyed the subject although it is notorious for being a hard-to-pass subject. There is no information available on academic evaluations on Term 1 data as the student evaluations are private information of the lecturers involved.

### 4.2 Statistical Results

The data for Term 1 is collected back from 2010 when FOE began an efficient electronic file database that would store all documents related to all the subjects offered by the faculty. This included lecture notes, tutorial notes, exam papers with solutions, reports (including student attendance reports and students’ results) and lab sheets. A postmortem report known as the *academic checklist* is documented by each subject coordinator after the final exam results are finalized to analyze the students’ results in terms of Course Outcome and Program Outcome achievements. Suggestions and comments for further improvement are also documented for the benefit of future lecturers teaching the subject.

In this case study, the *failure rate* (FR) is used as the parameter to compare the effectiveness of the implementation of BL and e-Learning tools. Thus, the following data is retrieved from the database, shown in Table 2. The average FR data from 7 cohorts is shown to be 33.2%. This average result of the student (which comprise of 60% final exam and 40% coursework) is 58.51%. In the faculty, if the final average mark is (i) below 60% or above 70% or (ii) the failure rate is above 20%, a special report has to be presented to the Board of Examiners (BOE) to discuss the issue. As such, this subject was discussed in all of the BOE meetings of Trimester I because of the high failure rate.



**Table 2:** Data for Term 1. Results obtained using the traditional approach in teaching.

<b>Cohort</b>	<b>Failure rate, %</b>	<b>Final Average Mark, %</b>
2010/2011	32.9	56.11
2011/2012	49.8	47.51
2012/2013	34.5	56.84
2013/2014	21.8	66.43
2014/2015	27.4	62.72
2015/2016	42.9	54.86
2016/2017	23.4	64.44
<b>Average FR</b>	<b>33.2</b>	<b>58.51</b>

In cohort 2017/2018 the author was selected as the Subject Coordinator of this subject to tackle the high failure rate problem and the learning strategies described in Section 3 was implemented. The results obtained for this particular semester are presented in Table 3. The failure rate has drastically decreased and is now below the critical cut-off level of 20%, while the average mark has increased significantly. It is important to note that the quality of the exam questions and assignments have remained consistent if not harder as a strict standard set by the Engineering Accreditation Council (EAC) is followed when setting exam/test questions.

**Table 3:** Data for Term 2. Results obtained using Flipped Learning approach in teaching with the incorporation of e-Learning Tools.

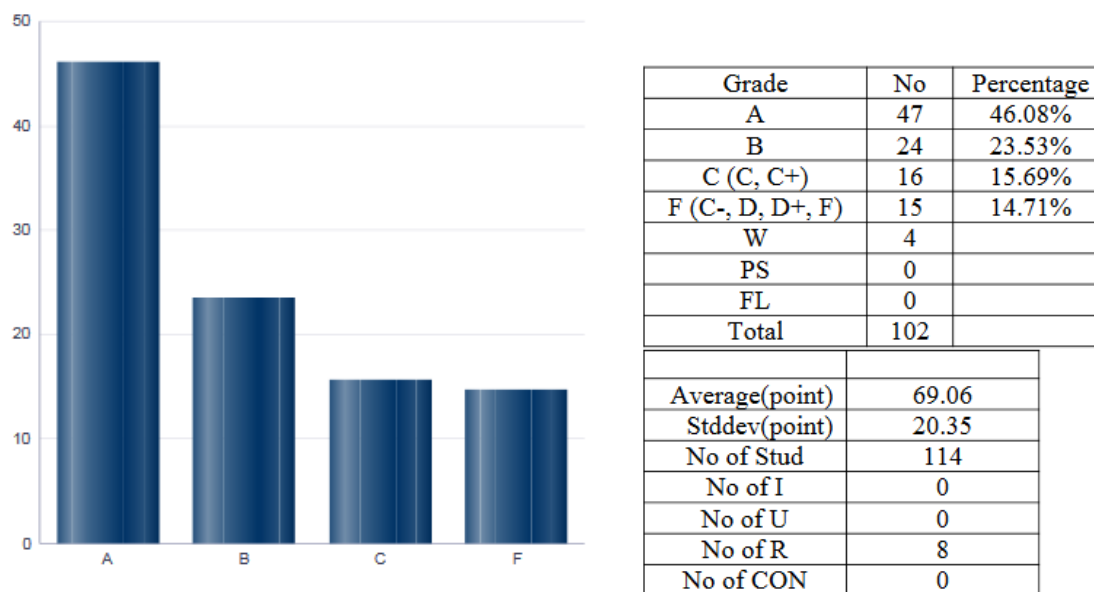
<b>Cohort</b>	<b>Failure rate, %</b>	<b>Final Average Mark, %</b>
2017/2018	12.4	70.25

The averaged values of Term 1 are compared with that of Term 2. Granted, not enough data is available for Term 2 as the e-Learning techniques have only been applied in one cohort, the FR of 12.4% is significantly lower than 33.2% and at an all-time low since 2010. Additionally, the final average mark of 70.25% is at an all-time high since 2010. In fact, in this particular trimester, the subject was again subject to discussion at the BOE meeting because the final average of the student exceeded that of the threshold of 70% for the first time in 8 years.

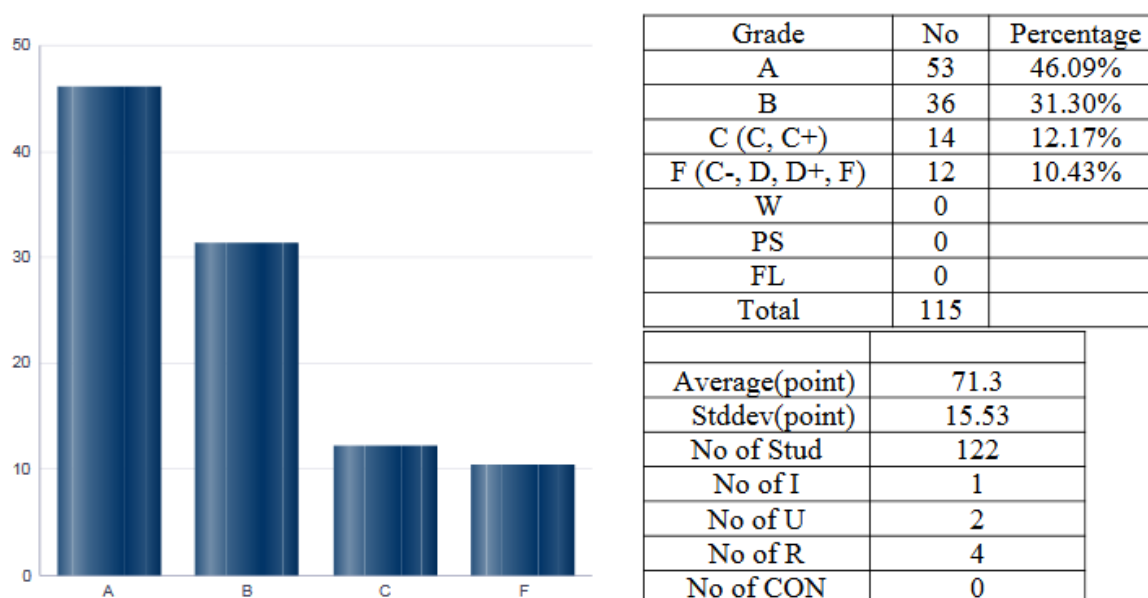
## 5. Discussion and Conclusions

Although we only have one cohort data for Term 1, we do have 2 sets of data. The subject was divided into 2 groups (due to the high number of students), and both classes ran in parallel. The same lecturers taught the subject for both groups. Each group consisted of approximately 110 students.

The results of both groups are shown in Figures 6 and 7 in terms of grade achieved and some statistical parameters (average and standard deviation). Note the high percentage of A and B grade students in both groups and the low failure rates (denoted with an F in the first table).



**Figure 6:** Statistical analysis of Group 1.



**Figure 7:** Statistical analysis of Group 2.

It can be speculated that the students in Term 2 are smarter than previous trimesters. This is highly unlikely as the problems encountered were the same as those previously documented. Slow learners, language problems, foreign students who registered late and were left behind, are some of the most prominent challenges. The issues were tackled in Term 2 in a similar manner: buddy tutoring and extra classes. However, in this session was also the implementation of the e-Learning tools and flipped learning for the entire class.

It is highly likely that the flipped learning classes allowed for the slow learners and late registration students to catch up with the rest of the class. The lecture videos allow them to watch the videos again and again until they finally understand the material. The explanations

in the videos were comprehensive, as due to the nature of the subject, examples would have to include introductory topics right until the current topic. The assignment at the end allows the student to apply the knowledge right away and the attendance marks as incentive forces the student to actually watch the video and complete the assignment before the F2F session (deadline). Finally, the F2F sessions in itself were utilized so well that it allowed students to voice out questions they may have and opens the door for discussion of complex examples and problems.

## 6. Future Work

The techniques that were implemented in Term 2 should be continued and prolonged if possible to more than just the 4 weeks highlighted in this study. More positive data would support the effectiveness of the approach and would enable a proper solid framework to be planned out for the subject. The e-Learning tools such as *Padlet* may be replaced with even more complicated applications in the future to sustain the students' interest in the class and boost creativity. The flipped learning concept coupled with videos and e-Learning tools should remain the key approach to the teaching and learning process of this subject as much discussion is required during F2F to clarify facts and explain examples. The teacher is successful when the student learns what is being taught. In this case, it is clearly observed from the students' point of view (based on the academic evaluations) and from the lecturers' point of view (based on the results) that the application of blended learning, flipped learning and e-Learning has been beneficial to both teacher and student.

## Acknowledgements

Thank you to the Dean and staff of the Faculty of Engineering for their contributions to this study in terms of data and suggestions and allowing me the freedom to handle my class my way.

## 7. REFERENCES

- Bergmann J. & Sams A. (2014) *Flipped Learning: Gateway to Student Engagement*, International Society for Technology in Education (ISTE)
- C-Programming [Computer Software]. (1972). Retrieved from <https://www.tutorialspoint.com/cprogramming>
- Lorin W. A. et al. (2013) *A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's*, Pearson Ltd.
- Ritchie, K. (2002) *Marketing to Generation X*, Simon & Schuster, New York, NY
- ScreenCast-o-Matic [Computer Software]. (2006). Retrieved from <https://screencast-o-matic.com/>
- Thorne, F. (2003) *Blended Learning: how to integrate online and traditional learning*, Kogan Page Limited

# 6

## **Blended Learning in Law School: Reality or Myth?**

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## Abstract

Course design with the idea of blended learning may assist the law school operates efficiently and ready for the modern application of the law. The course could follow the traditional way of teaching or known as 'face-to-face' approach which may be blended together with new strategies of teaching to prepare law students to think out of box. So what are the new strategies? The strategy could be applied online where the students may exercise the teaching and learning methodology outside the classroom and the interaction between the lecturer and the students may be in an online environment instead of just having a classroom environment. The combination of these teaching strategies could be weird to be practice in law school since we have practiced the traditional way of teaching for many years and not only the students but the lecturer as well comfortable with this way of teaching. Then by looking at this state of mind the most famous question among the academic in the faculty would be "Is this real and applicable to us?"

Therefore, this chapter will answer the question and prove to us that the practice of blended learning in law school is real and not just a myth. This discussion is centered on a few questions. First, what is a blended course in law school? The law school format of teaching employs instructional technology which is more on the traditional method takes place in the classroom and supplement classroom instruction with web-based resources outside of the class. The objective of having blended learning in our law school is to replace a portion of the face-to-face classes with online instruction and to enhance the communication skill among the law students when the students participate more in class. Second, what are the activities, tools, and strategies to implement the idea of blended learning in law school? There are numbers of tools and efforts to be prepared by the academic in law school for the student for a blended course such as 'Flipped class', online activities, round-table discussion and legal presentation. Third, how to prove that blended courses are more effective than the traditional way of teaching and the significance of implementing the blended course? The most powerful evidence to prove the effectiveness of this course design is the achievement and response of students. Interviews with students and faculty who have extensive experience in taking and delivering blended course identify a number of advantages of the blended design especially on student engagement in the course, and improved student responsibility for their own learning process. The lecturer will not be just a person to deliver knowledge anymore since the student may collaborate with the academic to provide input from their research as well.

**Keywords:** *Law school, Blended course, Online activities, Face- to- face format, Law students*

## Introduction

Education at every stage in our life is constantly changing. This is the main challenge faced by an academic to encounter a new group of students for every new trimester with different attitude and level of academic. Likewise, the materials and teaching strategies available to academic continue to evolve and develop as well.

It is very interesting to expose the greatest way of blended course in teaching and learning strategy for foundation students. However, it will depend on the subject too where most of the subject in law school are ‘dry’ in sense of there are many things to read and refer. Indirectly speaking we cannot deny the reality where it is not easy to ask the students to read a book and this is why the law lecturer has to find a solution to this problem where we need to make our class interesting so then the student will participate and enjoy their learning process.

Recently the blended learning or also known as blended course approach has been promoted as a way to overcome stress either for law students or the academics. The description is as follows:

*“A reversal of traditional teaching where students gain first exposure to new material outside of class, usually via reading or lecture videos, and then class time is used to do harder work of assimilating that knowledge through strategies such as problem-solving, discussion or debates”*

(Castan & Hyams, 2017)

This blended approach could be taken as a platform to help law students to explore legal education by encouraging them to participate and be active in the classroom or in any other platforms for teaching and learning in the university. It should not be limited only in the classroom but also to other settings. This agenda should have covered three phases of a student’s life; pre-learning, in-learning, and post-learning.

Multimedia University’s definition of Blended Learning is *“Integrating online activities with face-to-face class teaching in planned, pedagogical & valuable manner”* together with the three teaching designs under i-University initiative such as 1) Instructional Design, 2) Learning Environment Design, and 3) Class Activities Design.

But how to incorporate this idea with all the teaching designs with the nature of law school? This is the challenge and the answer will be discussed further in the content.

## What is a blended course in law school?

By looking at the phrase itself “*Blended*” means combination and it is a “*Technology-enhanced*” courses, “*Hybrid*” courses or famously known as “*Flipped*” courses. In a simple definition, a “*Technology-enhanced*” course means the combination of the traditional method of teaching with technology to deliver-knowledge without alienating the existence of traditional methods. This strategy has become a common type of delivering knowledge in law school where students always bring and use their gadget in class while the lecturer uses the presentation slides in PowerPoint (Hess, 2013).

As an example, the students are familiar with the university’s website or known as MMLS which can be seen as the main source for students to get information about the course and subject. Other than that, for law students, it is normal to do research by surfing the legal websites, discussion boards, chat rooms, online quizzes, etc. Technology outside the classroom may also include any video recording prepared by the lecturer or any other experts in legal education such as successful lawyers, legal educators from other universities and legal analysis.

How about the Hybrid course? The term “*Hybrid course*” from the perspective of legal language is a course combining subjects like Law of Tort, Legal Research, and law with another discipline like economics and sociology (Hess, 2013). However, in our practice, we are more familiar with the “*Flipped*” method where it is a specific type of technology-enhanced which have to be read together with the theory of Hybrid course (Hess, 2013). In simple understanding, this format developed form the traditional way of teaching by looking at the needs of the students to use the technology in preparing themselves before they come to class and “*Flipped*” the class with their knowledge and ready to the next level of learning where the students will be using the knowledge to focus on application of law such as in problem-solving, case studies to enhance the student learning process.

The ‘*Flipped*’ class format will always practice the traditional face-to-face activities in class together with the idea of blended course which blends the traditional method of teaching with online activities including online instruction and online materials. (Hess, 2013) The format of teaching strategy in legal education has been the traditional approach. The law students previously prepare for class by reading the law cases, legal references like statutes, conventions, and declarations, and then attend classes where the lecturer will lead the lecture and discussion. We cannot deny the effectiveness of the face-to-face format for law school by looking at history achievement previously. However, when we are talking about this issue from the perspective of the current situation, it involves current students, current level of thinking, existing technology and so on. This contemporary situation of our students and the environment are changing similar to the demand and needs of the students nowadays. (Malaysian Education Blueprint 2015-2025 (Higher Education))

It is safe to say that the traditional way of teaching is insufficient to be applied to our new generation since they are born together with technology. Not only that, a blended course is not only about technology but the strategy on how the lecturer would-create a new environment which consists of these two spectrums in order to complete the needs of the students.

Therefore, the idea of abolishing the traditional face- to- face format in law school is totally wrong and misconnects with the idea of a blended course. This is the main key principle that needs to be understood by certain academics in the faculty who believe that by practicing blended learning in law school, we cannot have our traditional way of teaching at all. Instead, as Blended Learning suggest the best practices of face-to-face teaching should be combined with technology in order to enhance the teaching process and improve student learning.

For the record, in many years before the practice of law, schools have begun to standardize the using of blended course in all programs. (Hess, 2013) However, we are not planning to go to this far to have full all-online law courses. What we are trying to do is to blend the idea of these two spectrums because we believe on the effectiveness of face-to-face format and also the excitement in using the technology as our legal education tool.

### **Blended Learning methodologies**

There are numbers of methodologies which have been implemented for the students in law school based on the subject and the academic year involved. Basically, these methodologies are significant to be applied to first-year students as this group of student is still new, fresh and free to be developed. These teaching strategies come together with methods which are created purposely for law subjects especially the core subjects like Contract Law, Constitutional Law, Human Rights Law etc. Students have to put more effort into core subjects since it is compulsory for them to pass the subjects and normally these subjects need more focus, reading, and writing than other elective subjects. The methodologies are as follows:

#### **Methodology 1: *YouTube-ing***

One of the famous tools to support a blended course is by using YouTube channel in your teaching and learning strategy as shown in Figure 1. The lecturer may do some research by looking at various reliable legal sources from YouTube and share the information with the student. It could be more than that, when the lecturer may assign tasks and exercises by referring to the material provided on the YouTube channel. The application is very simple and easy to implement since the youngsters now days are very close to this application and seeing this tool as something which is interesting and user-friendly.



*Figure 1: The YouTube channel*



Next, the lecturer just has to search for the relevant videos or materials and be creative on how to create an interesting learning process for the students. In terms of legal education, there are plenty of materials on this course and not limited only in Malaysia but also in the international legal framework. It is very important for law students to do comparative studies with other states and find information for their research. Therefore, instead of just searching on Google for the fact and information which sometimes are not so reliable the student can actually watch videos from the legal experts or academic opinions from the YouTube and adapt the idea in their work submissions like assignment, presentation or tutorial discussion.

### **Methodology 2:** *Online activities*

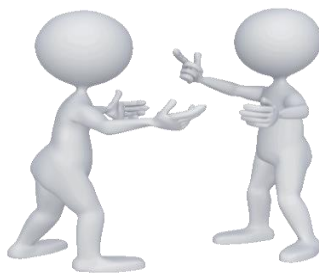
When we start to think about online activities we rarely find a suitable activity for law students since we always believe that to study law it should be done through a 'Chalk Talk'. Actually, there are many online activities available for law students but it has to be suitable based on the subject. As an effort to enhance student learning in the classroom, sets of questions may be asked to the students as 'Pop Quiz!' just to check whether the students are successfully captured the knowledge provided by the lecturer in a lecture class or after any presentation presented by the law students. As shown in Figure 2, the famous tool to be used for this objective is 'Kahoot' and most of the students are interested in joining this activity in class just to check their level of understanding about the topic and a kind of platform to release their stress after the lecture.



*Figure 2: 'Kahoot' apps which is famous amongst the students*

### **Methodology 3:** *'Flipped' class games/activities*

As a law student, you cannot avoid being a presenter or a debater. This is why as law lecturers, we are advised to polish and develop our student's communication and oratory skills for their future as a lawyer as shown in Figure 3. There are many ways to polish their communication skills during their teaching and learning process in university. It should not be sufficient if the effort is only being applied in tutorial classes where this should be continuing further in lecture session too. Therefore, the students should be given chances and opportunity to show their talent and ability to talk in front of people by flipping the class and creating a new environment where the lecturer will listen to the students and assessing their input and research through presentations, roundtable discussion and debate.



*Figure 3: The students have to enhance their oratory skills in order to become a good future lawyer*

#### **Methodology 4: Video recording**

The lecturer may also create their own video for that particular subject or discussion if the lecturer found that the information and material in YouTube channel are insufficient for their students. In our university, we do have this opportunity to create our video by joining the I-Studio or even the lecturer may use certain applications like 'Panapto' to create a video. The common comment made by the academic is 'How can we create our own video if we do not have that skill?' To answer this question, actually, this is why we keep encouraging the lecturer to participate in blended learning training like I-Studio as shown in Figure 4 because the videos are prepared by skillful personnel in the university. The product created by the lecturer together with the assistance of the technical staff will value the video. It will help the students to refer to the videos where completely served with notes and presentation slides. Plus, it should be seeing as an advantage for the lecture to have that material to be used for other groups of students based on their necessity in the future.



*Figure 4: The 'I-Studio' is a good platform for the academics to learn and create their videos for the students*

### Implementation: Contract Law and Human Rights Law courses

One of the basic implementations of a blended course in law was held for first and second-year students in Contract Law and Human Rights Law classes. There were almost 180 students per class for lecture and 30 students for the tutorial. Students were invited to view or watch a video from YouTube channel and do research for their presentation. The question for the presentation will be upload on MMLS or GAFE Google Classroom (known as GSuite) based on the video on YouTube. The students had to present their research and explain to the class the finding or any solution to the issue stated in the video. The students had to discuss further in class and being monitored by the lecturer. This is the simplest blended course application in Law school.

In order to make it interesting, the lecturer flipped the class by giving the opportunity to the students to ask questions or to comment on the presentation made by the presenter. There were students who volunteered to share their input with other students as they already done their research at home as shown in Figure 5. This activity is very suitable to be implemented in tutorial class since the numbers of students are lower than lecture so it is easier for the lecturer to supervise the activity of the students.



*Figure 5: The student was volunteered to share her opinion with the class*

How about in lecture? The same concept could be applying but we just have to rearrange the activity according to the scenario. As an example, the lecturer may invite the students to watch a video on YouTube by providing the link in class or MMLS. From Figure 6, it is shown that the students were invited to watch the video on their mobile and they were asked to find what are the issues relevant. Instead, the students were also asked to identify issues whether in group or individual assignments and whether it is in a role-play or debate. It is up to the lecturer's creativity in coloring the course. From this activity, not only the course will be blended but the chemistry between the students will be developed too.



**Figure 6:** *The students watching the video from their mobile to answer the question*

Another example of the interactive classes was a 'Timeline activity'. (Castan & Hyams, 2017) The students were divided into few groups in tutorial class and the students were asked any question from the chapter to the other students from other group and if the student failed to answer the question correctly, the student needs to answer the next question from another student until the student managed to answer the question.

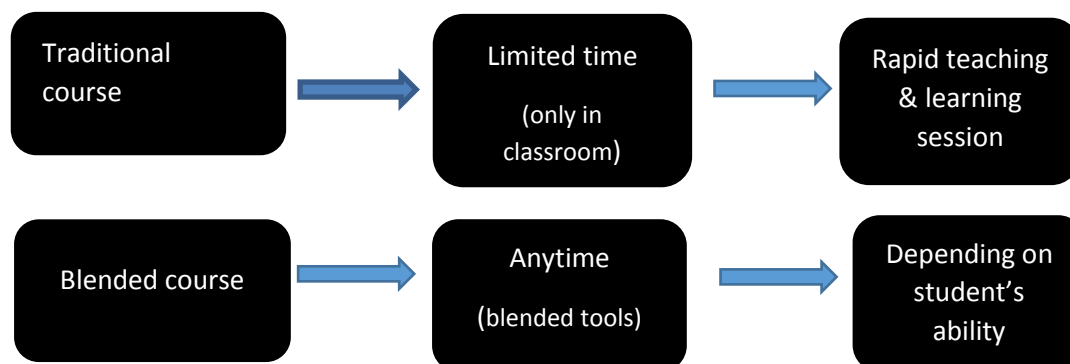
In this activity, the group mate of the student was advised to assist the student in a group discussion not longer than 3 minutes. This activity may ensure the student really understand the topic until the student could provide correct answers, while the activity encourages social interaction among the team members and develop healthy competitive spirit among the students to obtain knowledge. These activities were designed to serve the objectives of the law program to assist the student in grabbing basic legal knowledge and further ready to be a successful law student.

## Significance and Response

Currently speaking the practice of law is evolving together with the law students. The practice of law is increasingly digital and most of the crimes now days took place in the cyber world. As a future lawyer or legal practitioner, the students have to be familiar with computer. In the future, the students have to be clear and familiar will all the process and procedures where should be done through the online system. The internet has become a critical source for factual research. In litigation, pleadings and motions are served and filed electronically, the evidence is presented digitally in the courtroom, and e-discovery has become a central part of practice (Hess, 2013).

Blended learning should be treated as a platform to encourage the usage of traditional method and online strategy of teaching and learning in high education. The lecturer and the students may have a direct and rapid communication without having to wait for the class session in the classroom. There is no issue of time constraints. The students could do their revision with the supervision by the lecturer based on their schedule and same goes to the lecturer in case if the lecturer may not be fit to proceed with class then the blended course will be the answer to these problems.

Different students have different levels of thinking. For some students, they need time to digest all the information and cannot be forced in the class. On the other hand, some other students can focus on the lecture in class and proceed with the next chapter without any problem. From Figure 7, it is shown that the blended course is the good choice to help the students to enhance their learning process according to their ability and performance (Hess, 2013).



*Figure 7: The diagram shows the difference between Traditional course and Blended course in terms of student's learning ability*

From Table 1 in terms of response, the students believed the videos were very helpful for note taking and understanding basic legal knowledge.

*Table 1: Students' responses*

<b>Blended Course</b>	<b>Response (%)</b>
Video	77
Online Article/Journal	18
Online Activities (Games/Quizzes etc)	5

With videos, students may pause, rewind and replay the information restored in the video. Students may also do their revision or try to catch up with the syllabus if the student failed to attend the class. In this scenario, we are not encouraging the student to absent but we have to find an alternative way to assist this type of student so then they will still be learning and have good marks. This is the main duty of an academic to ensure the student is learning.

No students who participated with blended course mentioned had anything negative to say about the blended course in law school. However, we cannot deny that there are students who are not into the blended course because they believe the activities are not suitable for law especially when we played games by phone or gadget. To them, learning the law is all about reading and writing. Accordingly, we currently intend to address misunderstandings of this mentality by providing a clearer explanation to the first year students by organizing a talk about the importance of blended course in law faculty.

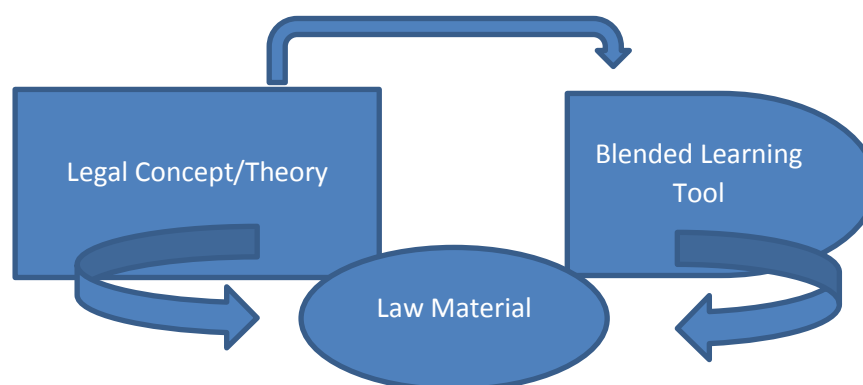
Finally, the students stated that they liked the blended learning teaching strategy because they will own the knowledge they gained from their effort, research, and findings. This should be seen as a positive step where the student will be more 'aggressive' to find ways to learn and not only wait for the lecturer to give everything like what we called before as 'Spoon feeding' style. This is the main difference between students in school and university. Logically speaking, if the student feels responsible to the knowledge that they owned by themselves with the assistance by the lecturer, they will appreciate their learning process. This point should be seen as one of the crucial parts in practicing blended learning from the psychology perspective.

## **Recommendations**

A challenge to practicing blended course is that students will not be able to contribute well in these two methodologies. To deal with this challenge, the lecturer should be flexible and familiar with the idea and practice of blended course. The application of the blended approach cannot be an excuse to skip the class or to cancel the class without any reason. However, this is another platform which complements the enhancement of technology nowadays (Hess, 2013).

Further on recommendation and suggestion, a blended course design is more complex compared with the traditional face-to-face method. The syllabus should be complete and comprehensive as a guidance to the students and the lecturer as well in delivering the course. Hence, the lecturer should plan their teaching strategy earlier in their teaching plan and inserting elements of blended course like online activities in the plan so that the teaching plan will be perfect for the lecturer and student's reference.

Next, we should treat “technology as a tool, not a toy” (Hess, 2013). In other words, we need to put some trust on technology which may assist the lecturer to use it as legal education tools in order to create relevant law materials for the students as shown in Figure 8 where the materials will help the students in their teaching and learning process.



**Figure 8:** *The legal theory needs to be combined with the blended approach to create law materials for the students but it must be relevant to the legal concept even though we are using the technology approach*

## Conclusion

Technology has arrived in our legal education. The traditional format of teaching, with no instruments of a blended course, is not really suitable for our new generation. Most of the lecturers or to be exact law lecturers use instructional technology in their teaching without realizing this reality by using presentation software, course websites and computer-based lessons. Therefore, it should not be a constraint for the lecturer to apply the blended learning design which includes online and traditional components, where now days should be part of our legal education in Malaysia.

However, to be fair with the situation, we consider that there are limitations and restrictions in accurately applying blended learning approach in law schools. One thing to realize is that there is no harm to try and encounter errors in the blended course design since it is not a new thing for the students and we shall take this opportunity to develop our teaching and learning practice in law school so then ‘we’ would not be a ‘stranger’ to technology (Hess, 2013).



Therefore, will blended course be an important way of teaching law in the future? The answer is why not. We as legal practitioners cum lecturer should always take our first step to make this happen as reality and not simply a myth. It requires continues effort and support to design the best blended course in law school in Multimedia University and practice will always make perfect.

## References

Castan, M. & Hyams, R. (2017). Blended Learning in the Law Classroom: Design, Implementation and Evaluation of an Intervention in the First Year Curriculum Design. *Legal Education Review*: Vol. 27 : Iss. 1 , Article 13. [Retrieved June 1 2018 from <https://epublications.bond.edu.au/ler/vol27/iss1/13>]

Hess, G. F.(2013). Blended Courses in Law School: The Best of Online and Face-To-Face Learning? 45 MCGEORGE L. REV. 51 (2013). [Retrieved June 1 2018 from <https://scholarlycommons.pacific.edu/mlr/vol45/iss1/3>]

Malaysian Education Blueprint 2015-2025 (Higher Education). Putrajaya: Ministry of Education, Malaysia. [Retrieved June 1 2018 from <https://www.moe.gov.my/index.php/en/dasar/pelan-pembangunan-pendidikan-malaysia-2013-2025>]

## ADEPT ELITE Workshops



# 7

## **Enhancing instrumental understanding and conceptual knowledge in Mathematics through computer-assisted learning**

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**Abstract**

The acquisition of mathematical understanding, both instrumental and relational knowledge are immense and complex. Appropriate composition of constructivism learning theory through computer-assisted learning and instructional theory in mathematics curriculum can support the learners in coping with the complex mathematical theory. The integration of computer-assisted learning in the curriculum allows students to personalize their learning based on mastery as well as continual content delivery regardless of time, place and pace of learning. Furthermore, the computer-assisted system is also incorporated with virtual mathematics modelling and visualization, thus allowing learners to enhance their relational understanding through active learning explorations. These enhancements in computer-assisted learning allow the learners to explore mathematics conceptually and permit rich illustrations of mathematics equations. The model behind the implementation of this innovative learning includes designing proper learning exercises and e-assessments, providing informative timely feedbacks, scrutinising item analysis report and adjusting instruction delivery for conceptual reinforcement throughout the curriculum. In this chapter, the affirmative outcomes in terms of the students' performance evidently indicate that the learning model can be integrated thoroughly within the curriculum for better enhancement and engagement of learning for foundation mathematics in the university. It may also possible to be further incorporated in other mathematics subjects for the undergraduate courses.

**Keywords:** *E-learning, Blended Learning, Computer-assisted Learning, Item Analysis Feedback*

## Introduction

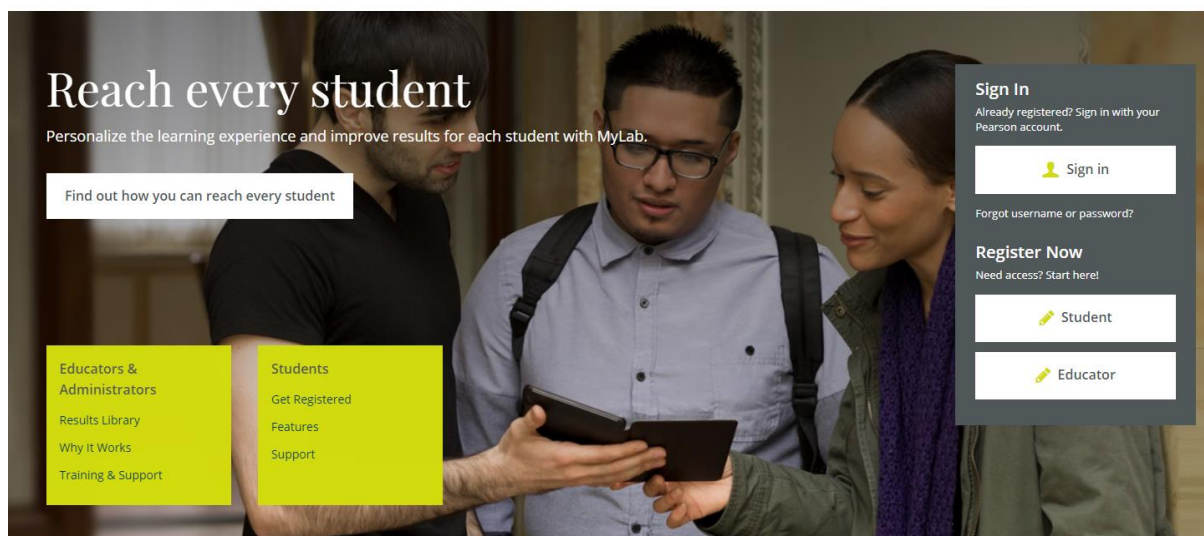
Educators are conscientiously emphasizing the importance of learning mathematics and its lack of competency among students. Mathematics curriculum is usually designed to be closely related to procedural and concepts learning that can be mastered through accrued practice and thus leads to rote learning and didactical teaching method. Moreover, many perceived that mathematics is an assemblage of disparate facts and rules that requires only memorisation and analogous execution of calculations leading to unique undisputable right answers. With such thoughts, mathematics teaching and learning styles have skewed towards the behaviorist approach, whereby teachers are being focused as the sole provider with the outright authority of the subject. This has dampened the learners' motivation in exploring alternative solutions as mathematics education moved towards content-based rather than a mastery-based learning. Accordingly, issues on lack of students' engagement and enthusiasm towards learning mathematics have heightened over the years.

Repetition practice and immediate feedback are found to be a common and effective approach in developing procedural understanding in mathematics (Young, 2017). However, today's students are less interested in repetition learning as it is time-consuming and required extensive student-teacher interaction for efficient immediate feedback. Furthermore, students having challenges with understanding classroom instructions and conceptual knowledge may tend to have complications in solving mathematical problems in the future. The lack of competency in mathematics will eventually lead to further associated impediments in other subjects. In view of this, recent research discovered that technology-enhanced learning, namely computer-assisted instructions have the potential as an instructional delivery system in assisting students to overcome these learning issues (Stacey, Chick, & Kendal, 2006). Unfortunately, a revision of mathematics curriculums and its teaching methodologies is also necessary to ensure the effectiveness of incorporating these learning technologies.

Educators are currently embracing this revolutionized learning and many may have successfully engaged students in their own learning. As the quality of student learning outcomes is frequently associated with student engagement, educators are diligently finding ways to increase and motivate students' participation in purposeful learning activities. Computer-assisted learning enables to a great extent, individualized students' preferences of knowledge, content delivery, place, time and pace of learning. It also enhances the overall learning and human-computer interaction which may allow students to engage in higher order thinking skills.

Thus, to engage and help students toward learning mathematics independently and progressively, a computer-assisted tutorial system, namely MyLab – Math by Pearson Education was introduced to allow students to learn at their own pace. Figure 1 shows the homepage of the MyLab – Math system that was adopted for the subject. The system was also used to track students' learning and engagement of their weekly homework and assessment. Furthermore, the learning ability of the student was continuously monitored through item analysis feedback reported in the system.





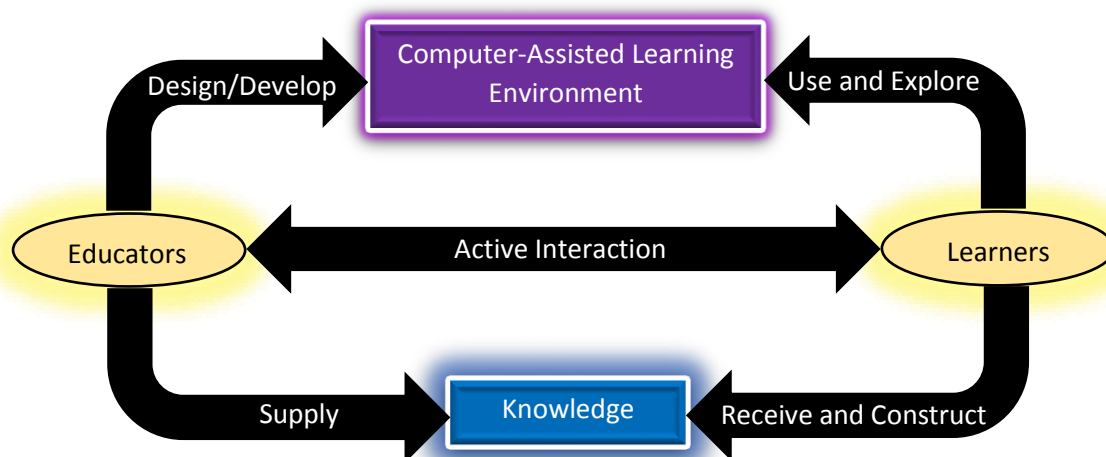
**Figure 1.** MyLab – Math Learning System by Pearson Education

The computer-assisted tutorial system is incorporated into the mathematics syllabus as part of the Blended Learning initiatives for Calculus class in the Foundation of Engineering programme in Faculty of Engineering and Technology, Multimedia University. Lectures and tutorial classes, which mainly accommodates the face-to-face sessions were carried out, as usual, to ensure diverse learning styles are catered for the students throughout the subject. However, the teaching approaches in the traditional tutorial sessions are revised to be more learner-centred, allowing various ways for students to create and engage with mathematical concepts they have learnt from the computer-assisted tutorial system.

### **Educational Principles of Computer-Assisted Learning**

Computer-assisted learning denotes the use of the computer as an instrument to assist and improve learning instruction through pedagogically planned tutorials, simulations, multimedia content, tests as well as performance monitoring system and immediate feedback for the students. It is designed to provide practical instructions through an interactive platform that allows personalized learning for all ages. Significant research and evidence also show that computer-assisted learning has the ability to enrich learning at different levels of education based on its pedagogy design (Resnick, 2017). The usage of computer-assisted technology in mathematics greatly emphasize the development of skills and practice among students. It helps to improve the conceptual knowledge development through individualized instruction based on students' ability and understanding. However, a suitable design of tasks, the change of instructors' role and learning environment are essential to ensure the accomplishment of inquiry-focused atmosphere in the learning of mathematics. Researchers found that by incorporating computer-assisted technology in the curriculum, it may be able to offer supplementary support in fulfilling students' need individually in the inclusive learning environment. Likewise, it is able to support the traditional classroom instructions as an operative delivery system when it is integrated with instructional design principles and effective intermediation mechanisms.

Since its commencement, the foundational philosophy behind computer-assisted learning has gone through three evolution developments such as cognitivism, behaviourism, and constructivism (McNulty, Halama, Dauzvardis, & Espiritu, 2000). Constructivism learning theory focuses on learner-centred knowledge as the educator encourages and facilitates construction of knowledge through various learning resources and social environment contextual. Educators no longer act as the sole imparter of knowledge but learners acquire knowledge through collaboration, discussion, perspective, and implication building in the constructivist learning environment. As such, learners will learn problem-solving skills through diverse routes and have control over their advancement in the learning materials. The blending of constructivism learning theory and instructional theory in mathematics curriculum has allowed new prospects in computer-assisted learning and provokes further development towards maturity. Further research focusing on hastening self-learning motivated environment should be emphasised in the forthcoming development of computer-assisted learning. Since computer-assisted learning tends to lean towards constructivism learning, learners have the benefits of constructing their knowledge and understanding based on worked problems in the system. Furthermore, through a guided social environment and interactions, the cognitive development of learners can also be expanded accordingly. Figure 2 shows how the constructivism education model can be adapted for computer-assisted learning in mathematics using the two basic principles of Glasersfeld (1988). The basic idea behind these constructivism education model indicates that knowledge is not passively received but are put together by students through active learning in the computer-assisted system as well as in the classrooms.



**Figure 2.** *Constructivism Education Model in Computer-assisted Learning (Glasserfeld, 1988)*

The acquisition of mathematical understanding, both instrumental and relational is immense and complex. Instrumental mathematics knowledge relates to the aptitude of learners to perform mathematical rules and procedures, which is usually enhanced through repetition, practice, and instantaneous feedback. Relational mathematics knowledge is more in-depth, requiring learners to know the meaning and reason behind the application of mathematical rules and procedures. It is akin to the development of conceptual knowledge of the subject matter. Researchers found that the usage of computer-assisted instructions has the capability to enhance instrumental understanding in learning through procedural knowledge enrichment (Snow, 2011). Furthermore, if the computer-assisted system is integrated with virtual



mathematics modelling and visualization, learners will intend to enhance their relational understanding through active learning explorations. These enhancements in computer-assisted learning allow the learners to explore mathematics conceptually and permit rich illustrations of mathematics equations. Thus, learners have the benefit of developing better conceptual understanding through visual mathematics representation. However, the effectiveness of incorporating computer-assisted learning in mathematics curriculum greatly reliant on the duration of usage and modality of teaching (Larwin & Larwin, 2011). Without proper curriculum management and instruction modality, the effects of computer-assisted learning on student achievement may not be significant.

In addition, formative assessments, also known as assessments for learning has a vital role in computer-assisted learning. This learner-centred measurement model is used as a guide in providing appropriate learning instructions as well as a support system for individual learning. It is integrated directly into the computer-assisted system and uses results from learners' endeavours to alter instructions, thus personalizing learning in a timely manner. This learning analytics can also be an indicator for educators to revise instructions accordingly or to clear any prevailing conceptual misconceptions immediately based on the students' assessment results. Beside educators, learners are also able to benefit from the direct instantaneous feedback which allows them to gain discernment over their improvement and seek the necessary assistance. With proper instructional adjustments and conceptual knowledge enhancement in a timely manner, learners will tend to have better engagement towards the subject and thus increases their motivation to continuously increase their mastery level. The incorporation of formative assessments in each level of mastery in the computer-assisted learning also allows personalized learning based on mastery, where slow learners are able to devote additional time on the topics that they are struggling while fast learners can progress to advanced topics. Moreover, it also works as a check-point for learners to monitor their progress and ensure that they are to cope with the course materials competently. One of the most essential components of mathematics learning focusses on continuous improvement of instruction delivery and quality of feedback towards learners' conceptual knowledge. Unfortunately, the necessity to conduct numerous formative assessments to gauge learners' mastery as well as providing instantaneous feedback can be very laborious and time-consuming, especially with a large group of learners. Nevertheless, the usage of computer-assisted learning with proper integration of formative assessment can help ease the educators' workload and has the ability to reach out to diverse learners at the same time.

### **Teaching and Learning Strategies: Calculus class**

In the current mathematics curriculum delivery, classroom instructions and conceptual knowledge are delivered through conventional methodologies such as lectures and tutorials. Traditional tutorial-based learning is akin to didactical learning where the content of the subject has higher emphasis compared to mathematical literacy. Though the students were encouraged to seek their own solution, many resorted to copying or refusal to participate in learning. Students are less interested in exploring alternative solutions as they are not equipped with strong conceptual knowledge before attending the tutorials.

Consequently, the lecturer became the outright authority of the subject by providing solutions for the tutorials. This “spoon-feeding” culture continue to prevail in our learning environment and thus averts students from cultivating creative thinking and problem-solving skills in mathematics education. These face-to-face tutorial instruction delivery is a common teaching and learning approach in mathematics but may no longer be viable as we begin to emphasize the importance of incorporating 21<sup>st</sup>-century learning characteristics into the education.

Thus, instruction delivery needs to be integrated with technology and learners should also be able to use technology to learn proficiently in their subject matter. In view of this, a computer-assisted tutorial system, namely MyLab – Math by Pearson Education is adopted and incorporated in the mathematics curriculum to encourage constructivism learning as well as enhancing conceptual knowledge through technology.

The main idea of computer-assisted tutorials is to encourage self-determining learner-paced learning and self-improvement through the use of guided tutorial questions and assessment. The courseware contains pre-assigned homework, multimedia content, e-assessment, and simulator that enable students to personalized learning based on mastery. The computer-based tutorials were designed to deliver a sequence of weekly exercises for students to develop their basic mathematics conceptual knowledge independently throughout the semester. Students can attempt the exercises as many time as they want until they feel they have mastered the topic. However, in each new attempt, the variables in the questions are randomly generated to enable a diversity of questions during each exercise.

Moreover, the computer-assisted learning system will also be assigning a different variety of question for each student, yet, with the similar learning objective for each exercise. These mathematics exercises with randomly generated variable were distinctive to each student and thus eradicates the concern of copying among students. The idea behind computer-assisted tutorials was to allow the students to be responsible for their own learning and to create awareness of their level in mathematical thinking, with some control element by the facilitators. No specific deadlines were given for these exercises, conversely, e-assessment will be carried out weekly to ensure students are on pace with the subject learning plan.

In the online exercises, each question is equipped with an example to assist students in solving the problem. The students have the option of learning the example question either through a pre-recorded video or step-by-step text-based instructions. Besides that, the computer-assisted system is also able to link the question back to the concepts learnt in the textbook by selecting the “Textbook” option on the menu, as illustrated in Figure 3. This feature is very useful, particularly when the student needs to reinforce their conceptual knowledge according to the questions as well as study the relations of the problem with its mathematical concepts. The “Ask My Instructor” option allows students to communicate with their respective lecturer via email if they require further assistance in solving the problem.

Homework: Calculus Tutorial 2A (Week 3) Save

Score: 1 of 1 pt 20 of 40 (1 complete) HW Score: 2.5%, 1 of 40 pts

3.5/12 Question Help

Find  $\frac{dy}{dx}$  for the following function.

$$y = \frac{7 \cos x}{1 + \sin x}$$

$$\frac{dy}{dx} = -\frac{7(\sin^2 x + \sin x + \cos^2 x)}{(\sin x + 1)^2}$$

Question is complete. ?

All parts showing Similar Question

**Figure 3.** Sample of Online Exercises with Help Menu for Each Question

Furthermore, observe that the computer-assisted system only requires students to key in the respective answers for each question. Thus, students are encouraged to seek alternative solutions and explore the diverse methods in solving the questions for each exercise. There is no one ultimate procedure for solving the question though it leads to one common answer. Through this methodology, students learn through constructivism and seek the solution according to their prior conceptual knowledge of the subject. In addition, the system enables multiple attempts on the same learning objective by attempting similar exercises but with different variables by selecting the “Similar Exercises” option at the end of the page. The accessibility of online tutorials provided flexibility for students to learn at their own pace, any time of the day. Additionally, the availability of learning support and instantaneous feedback further motivated students in attempting difficult questions independently and equipped them with prior conceptual knowledge before attending the formal tutorial sessions.

The integration of e-assessment in the computer-assisted learning works as a formative assessment to gauge learners’ mastery as well as for students to monitor their progress in coping with the subject. It also permits the students to make constructive reflections on the topics and seek additional assistance in rectifying conceptual mistakes after the e-assessments. These e-assessments are conducted weekly with six objective questions that are selected randomly from the question bank database.

Figure 4 shows a sample of the e-assessment conducted weekly according to the subject learning plan. In order to eradicate the possibility of discussion and collaboration among students during the e-assessment and to ensure the validity of the results, this e-assessment was conducted in the university’s computer labs. In addition, the formative e-assessments are incorporated with a basic setting of pre-requisites for the online exercises to ensure students completed their exercises before attempting the test. The pre-requisites are pre-set with the minimal 100 percentage of completion for its respective exercises, as illustrated in Figure 5.

**Quiz: Calculus Quiz 4 (Tutorial 2B) (Week 5)** Time Remaining: 00:28:55 [Submit Quiz](#)

This Question: 1 pt 2 of 7 (1 complete) [▶](#) This Quiz: 7 pts possible

Find the derivative of y with respect to x.

$$y = \ln \frac{1-x}{(x+2)^4}$$

A.  $\frac{(x+2)^4}{1-x}$   
 B.  $\frac{3x-6}{(x+2)(1-x)}$   
 C.  $\frac{3x-6}{(x+2)^5}$   
 D.  $\ln \frac{5x-6}{(x+2)^5}$

Click to select your answer. ? [▶](#)

*Figure 4. Sample of e-Assessment Conducted Weekly*

### Add Prerequisites

Select prerequisite(s) for assignment: **Calculus Quiz 4 (Tutorial 2B) (Week 5)**

Prerequisite Item	Minimum Score (Optional)	For this Attempt
Tutorial 2B (Part1) ▼	100 %	All Attempts ▼
--None-- ▼	%	All Attempts ▼

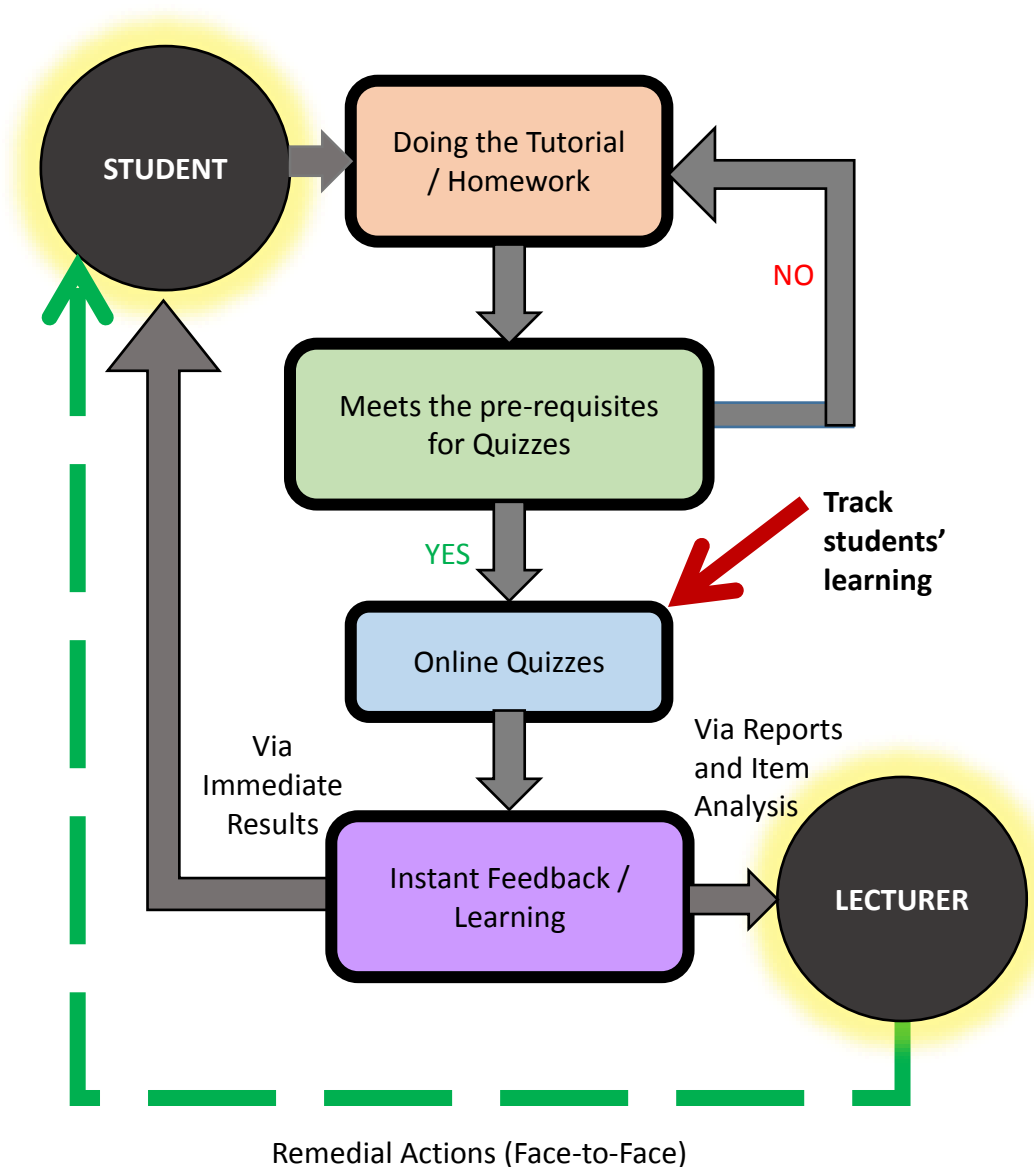
[Add alternate prerequisites](#)

*Figure 5. Pre-requisites settings for e-assessments*

This is done to ensure that students obtain sufficient prior knowledge of the topics before attempting the e-assessments as the test results are meant to gauge the students' mastery and will affect future adjustments of instruction delivery.

Once the system has been set up with the pre-requisites, students will not be allowed to attempt the e-assessment if they are yet to complete the pre-assigned exercises. The system will automatically direct the students to complete the respective exercises first before attempting the test. After completing the e-assessments, students have the benefits of obtaining instantaneous feedback for their test and perform immediate remedial rectification of their mistakes or misconception in mathematical theories. Compared to paper-based assessments, students do not need to wait long for their results and delay their rectification of errors. Prolonged rectification would undermine the students' motivation and gives supposition to the students that the inapt conceptual applied in the assessment was correct and may be repeated in future examinations.

Subsequent to the e-assessments, the students can work in pairs, in groups or in a one-to-one session with the lecturer to discuss and rectify the mistakes done in the test. The discussions which are usually done in the classroom environment encourages active and cooperative learning, thus building good communications skills among students and lecturers. Previous research studies (Freeman et al, 2014) showed that students' engagement and performance tend to improve significantly when there was active and cooperative participation among students. Therefore, we adopted both active and cooperative learning approaches in the classroom, and similarly, we observed that students tend to learn better by working together in solving more challenging problems.



**Figure 6.** Procedures for Computer-assisted Learning via Online Assessment and Feedbacks (Thong, Ng, Ong & Sun, 2017)

The processes for the computer-assisted learning applied throughout the mathematics curriculum are as shown in Figure 6. Observed that the advantages of instantaneous feedback of the e-assessments can be valued by both the lecturers and students. For the students, they are able to monitor the progress of their learning as well as to allow personalized learning based on their mastery. Likewise, through the e-assessments and exercises reports, lecturers can also acquire and explore the learning characteristics of their students and adjust the instruction delivery to accommodate their students for better engagement in the subject. In any learning processes, providing informative feedback in a timely manner is vital for the students (Van der Kleij, 2012). It is crucial as students usually learn better through immediate corrective measures and continuous support throughout the learning process.

In view of that, the item analysis function in the MyLab – Math by Pearson Education was used to enhance the teaching and learning processes in addition for continuous quality improvement. Item analysis is a process of analysing class-wide performance based on individual assessments. This task can be extremely laborious and time-consuming especially it is done without a proper e-management system. In the traditional paper-based assessments, class-wide analysis of students' results by learning objectives cannot be measured in a timely manner. Thus, corrective discussions can only be done for the respective questions in the test. Lecturers will not have sufficient time to gauge the conceptual knowledge of the whole class and adjust instruction delivery in due time. However, through the use of item analysis report, lecturers will be able to have an overview of the students' conceptual understanding associated accordingly to the subject learning objectives. An item analysis report for an e-assessment usually comprises of the learning objective of each question assigned, the total number of attempts, the total number of correct attempts, the total number of incorrect attempts, and the average time spent, as illustrated in Figure 7.

Item Analysis

Quiz: Calculus Quiz 4 (Tutorial 2B) (Week 5) Due: 06/16/18 6:00pm # of students submitted: 69 Total attempts: 69

Best Score Most Recent Score All Attempts

- This is a pooled assignment
- Includes data from each student's Best Score attempt. Does not include results submitted by an instructor.

#	Question ID	Objective	# Uses on Quiz	Correct	Partial Credit	Incorrect	Not Attempted	Avg Time Spent	Median Time Spent	Score as Correct
1	GR.1.1	Fractions	69	69	0	0	0	22s	Show	<input checked="" type="checkbox"/>
2	*11.2-12 (tb)	Find slopes of parametrized curves at given t-values.	23	11	1	11	0	8m 18s	Show	<input type="checkbox"/>
2	*11.2-13 (tb)	Find slopes of parametrized curves at given t-values.	20	10	1	9	0	8m 43s	Show	<input type="checkbox"/>
2	*11.2-14 (tb)	Find slopes of parametrized curves at given t-values.	26	18	1	7	0	6m 17s	Show	<input type="checkbox"/>
3	*3.6-22 (tb)	Use the Chain Rule to find first derivatives.	36	25	1	9	1	5m 53s	Show	<input type="checkbox"/>
3	*3.6-25 (tb)	Use the Chain Rule to find second derivatives.	33	16	3	14	0	8m 49s	Show	<input type="checkbox"/>
4	*3.7-1 (tb)	Use implicit differentiation to find first derivatives.	17	15	0	2	0	2m 40s	Show	<input type="checkbox"/>
4	*3.7-2 (tb)	Use implicit differentiation to find first derivatives.	31	26	1	3	1	3m 37s	Show	<input type="checkbox"/>
4	*3.7-4 (tb)	Use implicit differentiation to find first derivatives.	21	21	0	0	0	2m 5s	Show	<input type="checkbox"/>

**Figure 7.** A sample of Item Analysis Report for the E-assessment.

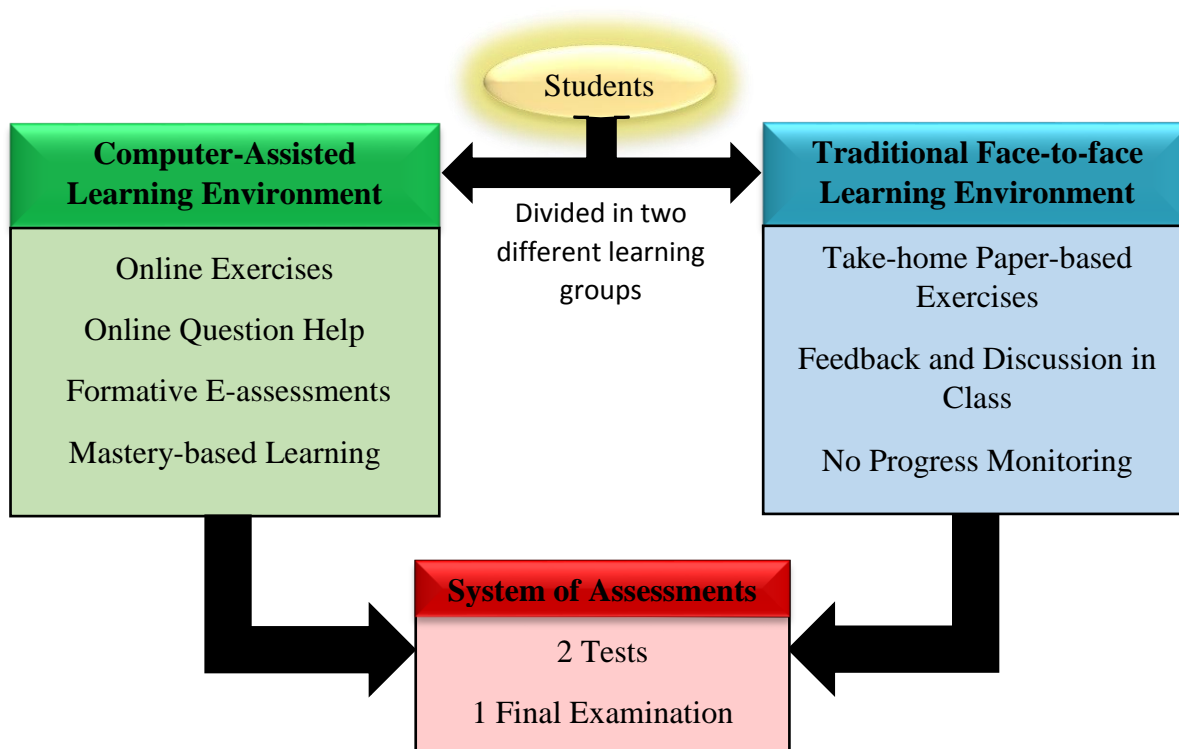
The performance monitoring of students through item analysis report is generally beneficial in analysing the conceptual understanding and learning behaviour of the students in relation to the learning outcome of the subject. Based on the reports, lecturers will be able to do the required adaptations of their instruction delivery in subsequent classes to reinforce relative concepts according to the mistakes done in the students' e-assessments. Through conceptual reinforcement, students can learn hints on solving problem critically and concretize their conceptual understanding. Likewise, lecturers can also decide to observe each student's learning advancement throughout the semester for performance monitoring purposes. Supposedly a group of students is found to have low-to-moderate performance throughout their weekly e-assessments using the computer-assisted system, remedial classes can be conducted to assist these students immediately. I personally find that the incorporation of computer-assisted learning into the mathematics curriculum is clearly beneficial in boosting the students'



motivation and engagement towards gaining better mathematical understanding throughout the trimester.

### Significance and Impact

In this study, two categories of implementation were done to examine the prospective effect of computer-assisted learning in mathematics curriculum for foundation students of Faculty of Engineering and Technology. In the first category of implementation, students were randomly selected and placed in two different groups, where one of the groups will be on full traditional face-to-face learning while the other group is placed to learn concepts using a mixture of computer-assisted learning and face-to-face learning environment. In the computer-assisted learning group, the students worked on the exercises online with assistance, as described previously. They were also given e-assessments weekly to gauge their mastery as they learn. For the traditional face-to-face learning group, the students performed their exercises on paper and remedial feedback and discussion can only be done in the classroom. All these students were then placed to undertake two tests in between the trimesters and one final assessment at the end of the trimester, as illustrated in Figure 8.

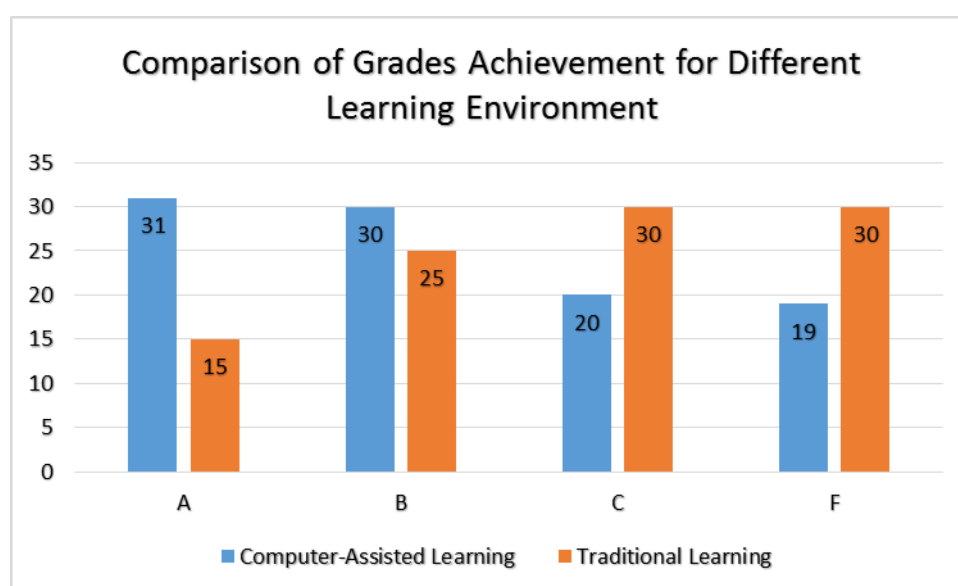


*Figure 8. An Overview Computer-Assisted Learning Environment and Traditional Face-to-face Learning Environment*

Based on the students' results, it is observed that the students under computer-assisted learning group have an average assessment marks of 51.7 percent which is comparatively better than the traditional learning group with an average mark of 43.7 percent. Further analysis also shows that 70 percent of the students in computer-assisted learning group managed to pass the subject, however, for the traditional learning group, only 55 percent of the students managed to achieve above the passing grade of C.

It is also established that among the 30 percent of students in the computer-assisted learning that failed the subject, the majority of them did not complete their online exercises and e-assessments in a timely manner, thus, causing their learning to digress from the study plan. This also shows that the usage of computer-assisted learning can help to increase students' engagement and motivation towards learning mathematics.

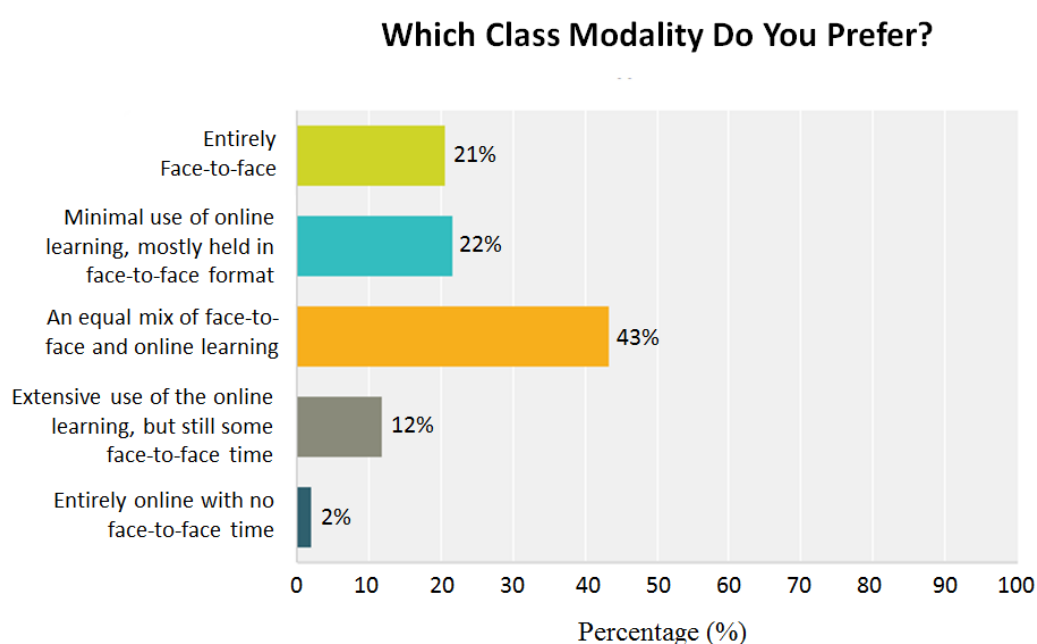
In the second implementation of computer-assisted learning, the learning model was implemented as part of the subject curriculum. All students enrolled in the subject are required to undertake the computer-assisted learning as their study plan and their progress is monitored accordingly throughout the trimester. Approximately ten e-assessments were given after the completion of each topic exercises to gauge their mastery level. These students were also placed to undertake two tests in between the trimesters and one final assessment at the end of the trimester.



**Figure 9.** A Comparison of Students' Grade Performance for Different Learning Model

Compared to the previous trimester, which was conducted solely using face-to-face traditional learning, substantial improvement of grades can be seen. The percentage of students achieving grade A is approximately 31 percent, while for grade B and C, it is about 30 percent and 20 percent respectively. The failure rate of the subject has also reduced significantly from 30 percent in the previous trimester to 19 percent now, as illustrated in Figure 9.

Moreover, a survey was also conducted at the end of the trimester in order to determine the preferred class modality of the students. Based on the analysis in Figure 10, it is found that majority of the students have a preference of having an equal mixture of face-to-face and online learning in their mathematics curriculum. About one-fifth of the class essentially favours either minimal usage of online learning system or solely the traditional brick-and-mortar learning for the subject. It is also found that these students dislike having extensive use of online learning or a complete full online learning environment in their mathematics curriculum. This is especially true as enhancing mathematical conceptual understanding do requires an active classroom environment with appropriate instruction delivery. Furthermore, the students do enjoy that a fragment of their mathematics learning to be online using computer-assisted learning as they are able to learn at their own pace, time and place in enhancing their instrumental mathematics knowledge.

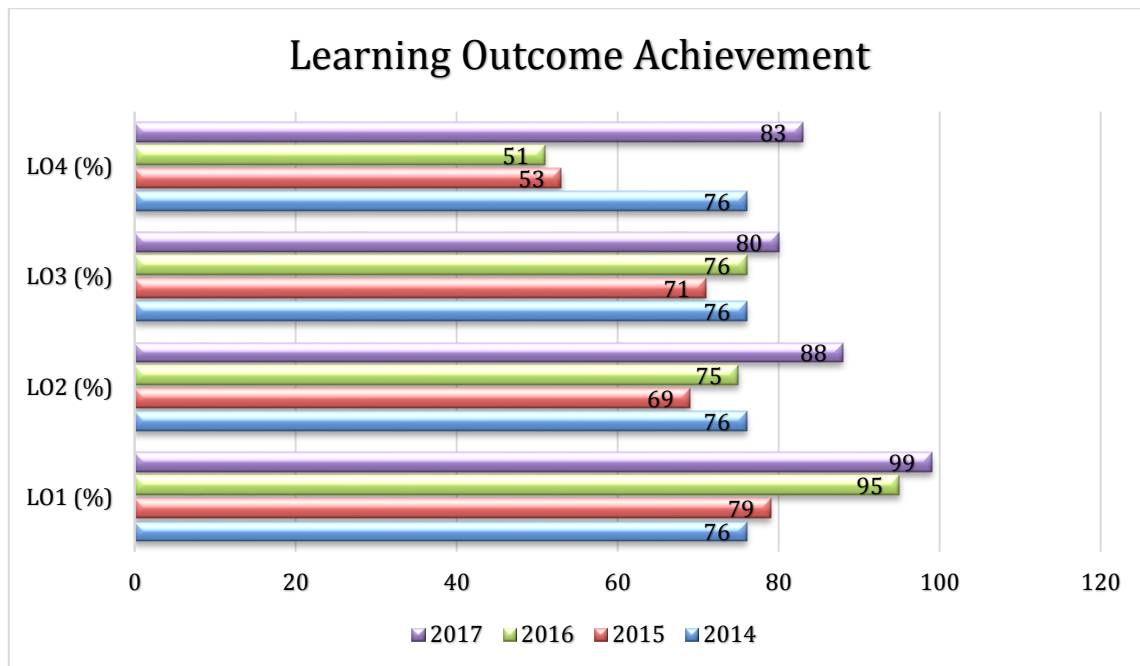


**Figure 10.** Survey on the Preferred Class Modality for the Students

As a result of positive feedback and performance of the students, the computer-assisted learning is further implemented in subsequent trimesters for Calculus subject. The yearly performance of the students is observed based on the learning outcomes of their subject, as shown in Figure 11. There are four learning outcomes that should be achieved by the students upon completion of the course, namely

- i. LO1: Solve the problems related to limits of various functions using a variety of methods.
- ii. LO2: Calculate the derivative of polynomial functions, logarithmic functions, exponential functions and trigonometry functions using various techniques and solve problems related to its applications.
- iii. LO3: Calculate the integration of polynomial functions, logarithmic functions, exponential functions and trigonometry functions using various techniques and solve problems related to its applications.
- iv. LO4: Solve the first and second order differential equations.

A variety of e-assessments, tests, and examination are principally mapped to these learning outcomes to measure the cognitive learning of the students. Figure 11 demonstrates that the percentage of students achieving their learning outcome has been positively increasing over the years after the full implementation of computer-assisted learning in the mathematics curriculum. Observe that the number of students who succeed in achieving LO4 has shown a drastic increase in the year 2017 compared to the prior two years. This is due to the adjustment of instruction delivery and e-assessments by the lecturers to ensure more time was spent to reinforce conceptual knowledge. As LO4 is directly linked to the last topic of the subject, students tend to pay less attention in completing the online exercises given. Thus, e-assessments has been re-structured to encapsulate LO4 and is made compulsory for the students. Over the span of 4 years, instruction delivery has been adjusted accordingly for the betterment of students' learning and engagement in mathematics learning. These amendments of instruction delivery and conception reinforcement can only be done through substantial analysis of students' performance in the computer-assisted system. Additionally, students incline to achieve better when they are engaged in their learning through computer-assisted tutorials, coupled with timely feedback and reinforcement of conceptual theory throughout the course.



*Figure 11. Yearly Achievement of the Students Based on Learning Outcomes*

## Conclusion

The computer-assisted learning which was integrated into the mathematics curriculum was designed to provide a conceptual shift from rote learning of mathematics toward appreciating and understanding mathematics concepts, both instrumental and relational knowledge. The preliminary findings of this study seem encouraging and have the potential of enhancing students' conceptual knowledge through a combination of computer-assisted learning, instructional delivery, and timely constructive feedback. The integration of this learning model also helps to enhance students' engagement and motivation towards learning mathematics in the university.

## REFERENCES

- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, *111*(23), 8410-8415.
- Glaserfeld, E. V. (1988). The reluctance to change a way of thinking. *The Irish Journal of Psychology*, *9*(1), 83-90.
- Larwin, K., & Larwin, D. (2011). A meta-analysis examining the impact of computer-assisted instruction on postsecondary statistics education: 40 years of research. *Journal of Research on Technology in Education*, *43*(3), 253-278.
- McNulty, J. A., Halama, J., Dauzvardis, M. F., & Espiritu, B. (2000). Evaluation of Web-based computer-aided instruction in a basic science course. *Academic Medicine*, *75*(1), 59-65.
- Resnick, L. B. (2017). Toward a cognitive theory of instruction. In *Learning and motivation in the classroom* (pp. 5-38). Routledge.
- Snow, D. R. (2011). The Teacher's Role in Effective Computer-Assisted Instruction Intervention. *Mathematics Teacher*, *104*(7), 532-536.
- Stacey, K., Chick, H., & Kendal, M. (Eds.). (2006). *The future of the teaching and learning of algebra: The 12th ICMI study* (Vol. 8). Springer Science & Business Media.
- Thong, L. W., Ng, P. K., Ong, P. T., & Sun, C. C. (2017, September). Computer-assisted Tutorials and Item Analysis Feedback Learning (CaTIAF): Enhancing and Engaging Students' Learning in Foundation Mathematics. In *Progress in Continuing Engineering Education and Life Long Learning, 2017 International Conference*.
- Van der Kleij, F. M., Eggen, T. J., Timmers, C. F., & Veldkamp, B. P. (2012). Effects of feedback in a computer-based assessment for learning. *Computers & Education*, *58*(1), 263-272.
- Young, J. (2017). Technology-enhanced mathematics instruction: A second-order meta-analysis of 30 years of research. *Educational Research Review*, *22*, 19-33.

# 8

## Using quiz-based apps to stimulate higher order thinking in a management course

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## About the author



Dr. Jinghong Low has been a lecturer in the Faculty of Management in Multimedia University since year 2009. He received his bachelor degree in the Faculty of Information Science and Technology (FIST), Multimedia University. In year 2009, he completed his Master of Engineering (HCI) degree in Global School of Media, Soongsil University, Seoul, South Korea. In year 2017, he completed his Ph.D degree in Multimedia University. Jinghong has been a TALENT for the Office Academic Development for Excellence in Programmes and Teaching (ADEPT), Multimedia University since year 2016 and in charge of the integrating the blended learning strategy in teaching and learning among the faculty members. His passion in education and integrating HCI in teaching and learning has led him to a number of training opportunities in university level and national level. Dr. Low is an HRDF and Google Educator Level 1, and 2 certified trainer, and the TALENT Team Leader for the GSuite Workshop Series.

## Abstract

This paper introduces gamification as an approach to enhance the learning experience of the students on the subject of multimedia management. Generally, the students, especially the management students are not interested in the technology related subject. Gamification is suggested as a solution to enhance the learning experience of this subject, and a blended learning strategy is integrated as part of the gamification component. A web 2.0 app, namely Quizizz, is introduced to complement the teaching and learning activity of this subject. Observation method is used to gather feedback of the learners experimenting with this approach. Generally, the students are very positive about the proposed gamification strategy.

**Keywords:** *Gamification, quiz-based learning*



## Introduction –The Warning?

In the past few semesters, I realised that the performance of my students was getting worse when compared with past trimester average mark performance. I wanted to find the root cause of this situation as I believe that everyone can learn. I need to look for the reason and solutions to overcome this problem. Therefore, I took on the challenge to investigate how to help the students. It is very challenging to share the contemporary technology knowledge to the students because it sounds arduous to the business and management students. The faculty of management (FOM) offers practical and industry-ready degrees that allow students to make a real and lasting impact as a business and financial specialists. In addition, it also seeks to empower the students with expertise and knowledge and are committed to offering programmes in a global context to enhance learners' depth and perception for successful careers in the business, government, and non-profit sectors. Therefore, these students are required to take a subject that enables them learn content that is related to the information system, such as BMM 1014 Multimedia Management. In this subject, students will master the contemporary information about the latest use of technology and its implication.

In general, these business and management students give up mastering technology-related knowledge, as they feel that technology is not related to them. There are a few things that every business and management student needs to know about the technology as they prepare to take on a career in the field. Technology is a rapidly evolving field that is constantly changing and expanding into new areas of application. This means business and management students need to adopt a flexible attitude towards their craft so that they can meet the demands of an evolving industry. Since the knowledge of technology is important to business and management students, a new teaching and learning approach should be introduced to enhance their interest in the knowledge of technology.

One of the strategic directions that I consider is blended learning. Blended learning is considered because this strategy uses both online and face-to-face method in learning when it comes to lecturing the learners. The learners might join a class taught by a lecturer in a traditional classroom setting, and also complete online components alone during none-schooling time. In this case, in-class time may be either replaced or supplemented by online learning experiences. The students would learn about the same topics during their online sessions as they do in class, for example, the online and in-person learning experiences would be parallel and they also complement one another. Blended learning is also known as hybrid learning or mixed-mode learning.

Blended-learning or hybrid learning experience may differ widely in terms of scheme and execution from institution to institution. For example, online learning may be a major part of a distance-education based course. In this distance-education based course, the learners are required to complete their teaching and learning activities digitally or treat the digital content as the primary instructional material/medium to interact with an instructor, for example by using video recordings, Web 2.0 webs or a massive open course platform. In addition, the learners may work independently or in the group to complete online modules, projects, and assignments in a none-schooling or none-wall environment. The learners will meet the instructor to review the progress of learning, discussion, feedback or receive assistance periodically. In another situation, the learners spend their time in a traditional school setting to learn something from the instructor, but they will spend majority of their time to independently complete online tasks given by the instructor. In this situation, the learners treat the instructor as a coach who will help them to complete the tasks.

## Literature Review

In higher education, the term hybrid course was previously used to define the blended learning teaching and learning activity. The terms of blended learning and hybrid learning are interchangeably used until today. There continues to be debate over the precise meaning and relevance of blended learning (Graham, Woodfield, & Harrison, 2013; Staker & Horn, 2012). The most prevalent position is that BL environments combine F2F learning with technology-mediated instruction (Cohen, 1998; Graham et al., 2013). Technology-mediated Instruction is defined as all forms of instruction that are strengthened by the utilizing of the electronic-based gadget. It specifically includes distance education, instructional modules delivered via mass media, and computer-assisted instruction (Henrie, Halverson, & Graham, 2015). In teaching and learning, using the right pedagogy is important.

Pedagogy plays a big role to connect the wider world, supportive classroom environments and recognition of difference. In addition, pedagogical practice promotes the wellbeing of students, teachers and the school community as it improves students' and teachers' confidence and contributes to their sense of purpose for being at school; it builds community confidence in the quality of learning and teaching in the school. A key factor in pedagogy is developing approaches which work within different national and local contexts (Ball, 2000; Hare & van Manen, 1992; Livingston, Schweisfurth, Brace, & Nash, 2017). A lack of critical engagement with pedagogy in global policy has allowed the space to be filled with ready-made prescriptions from a range of agencies concerned with classroom practice. Therefore, the pedagogy of using blended learning is implemented in this chapter to help the process of teaching and learning become smooth.

## Scenario and problem

Multimedia Management is a course that focuses on how to use the multimedia and its application to achieve business and management objectives or outcomes. In this course, the learners will obtain creative and technical skills to diversify the business and management activities and enrich the target business and management areas. The syllabus of the course designs is created by combining knowledge of multimedia elements and the multimedia development life cycle.

On average, students' knowledge of multimedia and its application is not up to par. The knowledge of 5-WH question on multimedia and its application is generally lacking. This caused a challenge for me to discuss and seek an opinion from the students. This situation caused the students to be unable to pay attention and not get interested in my teaching and learning activities.

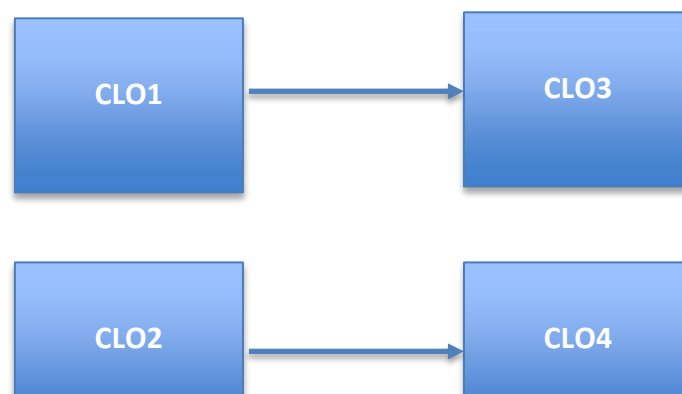
## Problem

Since the major problem is that the students are not interested in my course, the possible solution is to enhance students' learning experience of my subject. In this situation, I have examined the course learning outcomes to figure out the possible solutions. Four Course Learning Outcome (CLO) are available in this course. Students should achieve these four CLOs by the end of the course. Table 1 shown the CLO of the Multimedia Management course.

**Table 1:** *The CLOs of the course*

Course Learning Outcome (CLO)	Domain	Level
CLO1: Explain the multimedia elements in business and management activities.	Cognitive	2
CLO2: Apply the multimedia elements in business and management activities.	Affective	3
CLO3: Explain the multimedia project development stage in business and management activities.	Cognitive	2
CLO4: Apply the multimedia project development stage in business and management activities.	Affective	3

As shown in Table 1, there are two cognitive domain related learning outcomes and two affective domain learning outcomes. Students are expected to master ~~in~~ learning outcomes from the cognitive domain before the affective domain as the knowledge is interrelated, as shown in Figure 1. In general, discussion and debate with students are the approaches used to achieve the affective domain learning outcome. Unfortunately, students' knowledge is too weak at the initial stage to achieve the cognitive learning outcomes. Since this knowledge is new, the students might give up easily with my course.



**Figure 1** *The Flow of teaching and learning activity according to Course Learning Outcome Level*

Therefore, , what would be a fun way to encourage the student to stimulate their low order cognitive learning ability to high order learning ability? I kept thinking of the possible solution to enhance this learning situation. Thus, I tried to incorporate fun learning to help students achieve the outcomes in the cognitive domain by using an app to set up a gamification rule.

Gamification apps are used in the subject of teaching and learning activities. Gamification helps to make a functional learning system that authorizes learners to practice the real practical situation. It also authorizes the learners to challenge themselves in a guarded environment. There are several benefits of using gamification as an approach in teaching and learning. Firstly, the learners become involved in a “happy” and “fun” environment during the game. This “happy” and “fun” feeling motivates them to pursue the higher levels of the game, which ultimately results in a higher attention and retention rate of the content.

Secondly, gamification results in an effective, casual learning environment. This environment helps the learners to have an experience in real-life situations. In addition, it enables the learners to challenge themselves in a safe and secure environment, which is conducive to a more engaged learning practice. This engaged learning helps learners to maintain the knowledge better. And lastly, gamification gives a quick feedback so that learners are aware of what they should know or what they know. This situation allows better engagement between the content and the learners. Therefore, higher attention and retention rates are achieved. Furthermore, the reward system available in gamification platform would surely make training “fun” and “happy”. However, gamification is more than just those depthless-level advantages. Gamification can change the behaviour of the learners, especially in a situation that merged with the scientific theories of spaced repetition. Gamification also used to fulfil the needs of the learner. The needs of the learners include soft skills, awareness creation, and compliance.

### **Creating the learning environment**

A few sets of multiple choice questions (MCQ) are prepared in advance. The question is prepared in a sequence according to the learning objective. A game-based app namely “Quizizz” is used for the preparation stage. Figure 2 shows an interface of Quizizz. All the prepared MCQ questions are keyed in accordingly. Figure 3 shows an interface of “Quizizz”.

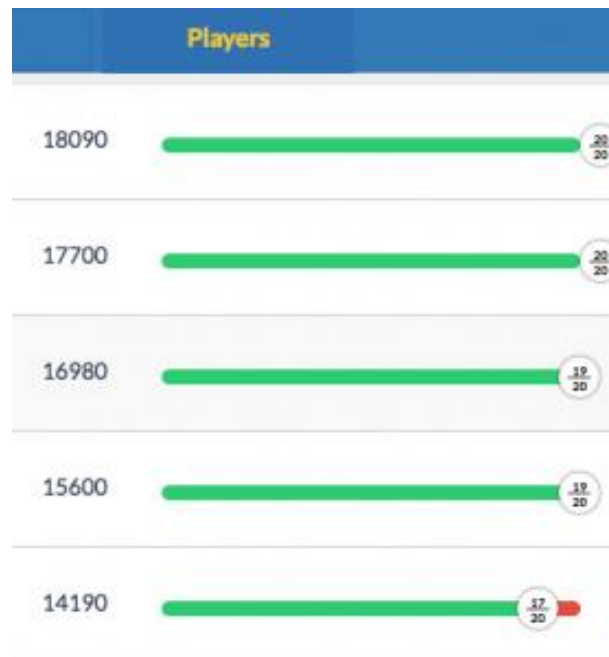
The screenshot shows the Quizizz profile page for Mr. Jinghong Low (@jhlw). The interface includes a navigation menu on the left with options like 'Create new quiz', 'Find a quiz', 'My quizzes', 'Reports', 'Collections', 'Memes', 'Profile', 'Settings', and 'Log out'. The main content area displays the user's profile information, including their name, handle, and affiliation with Multimedia University. Below this, there are tabs for 'Quizzes', 'Collections', and 'Memesets'. The 'Quizzes' tab is active, showing a list of quizzes: 'Text (25 Qs)', 'Audio (20 Qs)', 'BIM1014 Hardware and Software (30 Qs)', and 'BIM1014 Database (15 Qs)'. Each quiz entry includes play counts, grade level, and creation date. A sidebar on the right shows '20 Questions' with sample questions and answer choices.

*Figure 2 The profile interface of Quizizz*

The screenshot displays the Quizizz quiz bank for Mr. Low. The interface features a navigation menu on the left with options like 'Create new quiz', 'Find a quiz', 'My quizzes', 'Reports', 'Collections', 'Memes', 'Profile', 'Settings', and 'Log out'. The main content area shows a list of quizzes under the heading 'All my quizzes (20)'. The quizzes are ordered by 'Most recent' and include: 'Multimedia Development Stage (21 Qs)', 'Video (20 Qs)', 'Animation (20 Qs)', 'Audio (20 Qs)', 'Text (25 Qs)', and 'Image (22 Qs)'. Each quiz entry provides play counts, grade level, and creation date. A sidebar on the right shows 'Collections' with options like 'All my quizzes', 'Created by me', 'Liked quizzes', and 'Create a collection', along with specific collections like 'BIM1014' and 'BMM3114'.

*Figure 3 The quiz bank in the Quizizz*

The prepared quiz set was distributed to the students. The rules and regulations of the game were that students were allowed to play this game for multiple times and marks would be awarded if they got all questions right. This strategy allows the students to learn from their mistakes. It is also a strategy of giving formative assessments to the students. The students will remember and understand the content through this gamification learning experience. The reward is given to encourage the students to learn with this fun and interesting learning experience, as exhibited in Figure 4.



*Figure 4 Sample of the leaderboard for the reward.*

A duration of a week before the face-to-face session was given to students to complete the gamification tasks. This duration is given to ensure the students have enough time to prepare themselves before joining the face-to-face discussion in the class. This duration is used to ensure the students are able to achieve the best performance of the cognitive domain learning outcome of the subject. Moreover, it helps the students to achieve the other affective learning domain outcome too. As a result, this will ease the teaching and learning activities especially during the face to face section.

### Observation

I have observed the whole process of my implementation of the above mentioned strategy. Overall, this idea helped to enhance the quality of my teaching and learning activities. In addition, the depth of class discussions was higher and the students also performed better. This situation happens because the app, Quizizz, enabled the students to think critically in order to complete the task. Table 1 below shows some responses from the students.

**Table 1** *Sample of response from the students set 1*

1. I was excited to answer the question in Quizizz. This app leads me to think critically and quick to answer the question.
2. I was happy with this app as it helps and leads me to answer the question easily.
3. The countdown features of the app enable me to think critically and lead me to choose the answer.

I also observed that the students had more confidence to answer the questions. This happens because the students are confident to suggest and discuss the topic that is given. This enables the students to build the confidence in the process of learning, which is important for their future profession. On the other hand, the students also found that this activity helps them to build up with knowledge with confidence as the chance of learning (the trial and error approach) is given. Table 2 shows some responses from the students.

**Table 2** *Sample response from the students set 2*

1. I am getting confidence in multimedia management subject. This Quizizz app allows me to answer the question multiple time, in order to know the weekly subject matter.
2. The ease to use features available in Quizizz allow me to use the app in anytime and any place. This enables me to learn easily. This has built up my confidence in the subject.
3. I am getting more confidence in this subject as it is really fun to learn.

In addition, the students also commented that they love this self-paced learning strategy as they are able to achieve the task in anywhere and anytime. In addition, the students can pause at any time in order to further study a topic in further detail. Table 2 shows some responses from the students.

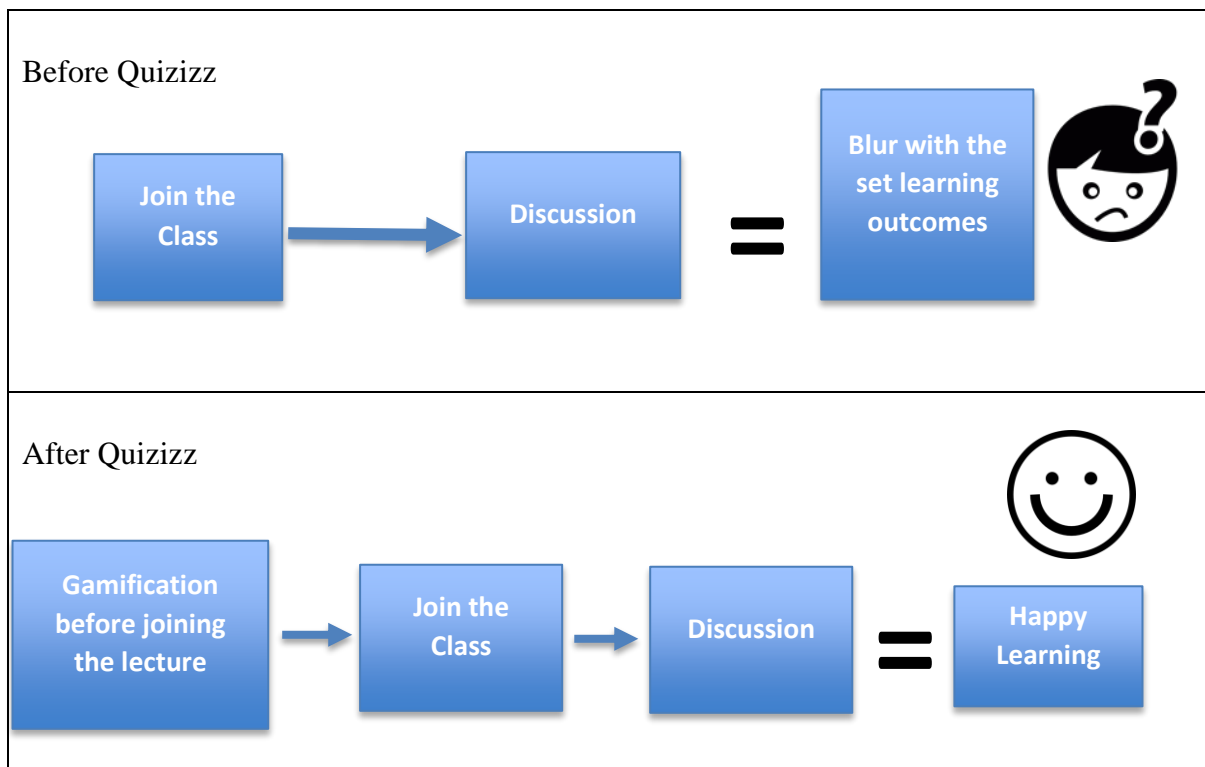
**Table 3** *Sample response from the student set 3*

1. What a great app that allows me to learn in anytime. Thanks, Quizzes
2. This app allows me to learn according to my own progress. In addition, it allows me to answer multiple time until I able to master the knowledge level of the subject matter.
3. I love the concept of the self-paced features of Quizzes.



## Conclusion and Future work

Overall, the implementation of gamification helped to bring up the cognitive thinking from low order to high order. Furthermore, this gamification approach helps the students to learn deeper and achieve a more positive learning experience as well as the domains of the learning outcomes. In addition, gamification offered an option that helped the students prepare themselves before joining the class. Based on the outcome of this blended learning approach, a proposed flow of the learning in comparison to the existing flow is presented in Figure 5.



**Figure 5** Comparison between before and after on the implementation of gamification.

For further work, I will further examine in detail about this stimulation to help students achieve learning outcomes from other domains such as affective and psychomotor. Hopefully, this will enhance the features of my idea and help students to learn better. In addition, I hope it will help to increase the teaching and learning quality of Multimedia University and Malaysia.

## References

- Ball, D. L. (2000). Bridging practices intertwining content and pedagogy in teaching and learning to teach. *Journal of Teacher Education*, 51(3), 241–247. <https://doi.org/10.1177/0022487100051003013>
- Cohen, D. (1998). *Chronicle of Higher Education*. *The Women's Review of Books*, 15(5), 27. <https://doi.org/10.2307/4022859>
- Graham, C. R., Woodfield, W., & Harrison, J. B. (2013). A framework for institutional adoption and implementation of blended learning in higher education. *Internet and Higher Education*, 18, 4–14. <https://doi.org/10.1016/j.iheduc.2012.09.003>
- Hare, W., & van Manen, M. (1992). The Tact of Teaching: The Meaning of Pedagogical Thoughtfulness. *Canadian Journal of Education / Revue canadienne de l'éducation* (Vol. 17). <https://doi.org/10.2307/1495441>
- Henrie, C. R., Halverson, L. R., & Graham, C. R. (2015). Measuring student engagement in technology-mediated learning: A review. *Computers and Education*, 90, 36–53. <https://doi.org/10.1016/j.compedu.2015.09.005>
- Livingston, K., Schweisfurth, M., Brace, G., & Nash, M. (2017). *Why Pedagogy Matters: The role of pedagogy in Education 2030*, (May), 1–31. Retrieved from <https://www.unesco.org.uk/wp-content/uploads/2017/06/pedagogy.pdf>
- Staker, H., & Horn, M. B. (2012). *Classifying K – 12 blended learning*. Innosight Institute, (May), 22. <https://doi.org/10.1007/s10639-007-9037-5>

# 9

## **Before Blended Learning: Lively Teaching Suggestions**

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**About the author:**

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**Abstract**

Normal human beings have a limited attention span. Listening to a lecturer lecture for one or two hours will virtually guarantee the loss of attention. Therefore, it is necessary to break up a lecture with different activities. These days, we are used to using blended learning apps on students' cell phones to deal with this issue, but that is not the only recourse. This paper provides some suggestions for activities beyond cell phone apps.

**Keywords:** *Attention span, Active, Lively*

## **Introduction**

Normal human beings have a limited attention span. Listening to a lecturer lecture for one or two hours will virtually guarantee the loss of attention. Therefore, it is necessary to break up a lecture with different activities.

These days, we are used to using blended learning apps on students' cell phones to deal with this issue. These apps are indeed useful and relevant, but we are not restricted to electronics. This article discusses some non-app-based techniques that have been successfully used in classes to break up a long lecture and renew student attention.

Traditionally, we have been told that the average person can only listen to a lecture for ten to fifteen minutes before they lose concentration. (Frederick, 1986) (Middendorf & Kalish, 1996) These figures have been challenged in recent years but the main idea that you need to break up a long lecture is still valid (Wilson & Korn, 2007).

In fact, (Bradbury, 2016) notes that the lecturer can make a big difference in the attention span of students, so it behoves us to be that kind of lecturer who can hold our students' attention. This will naturally allow our students to learn more from our lectures.

## **Teaching IT and Programming subjects**

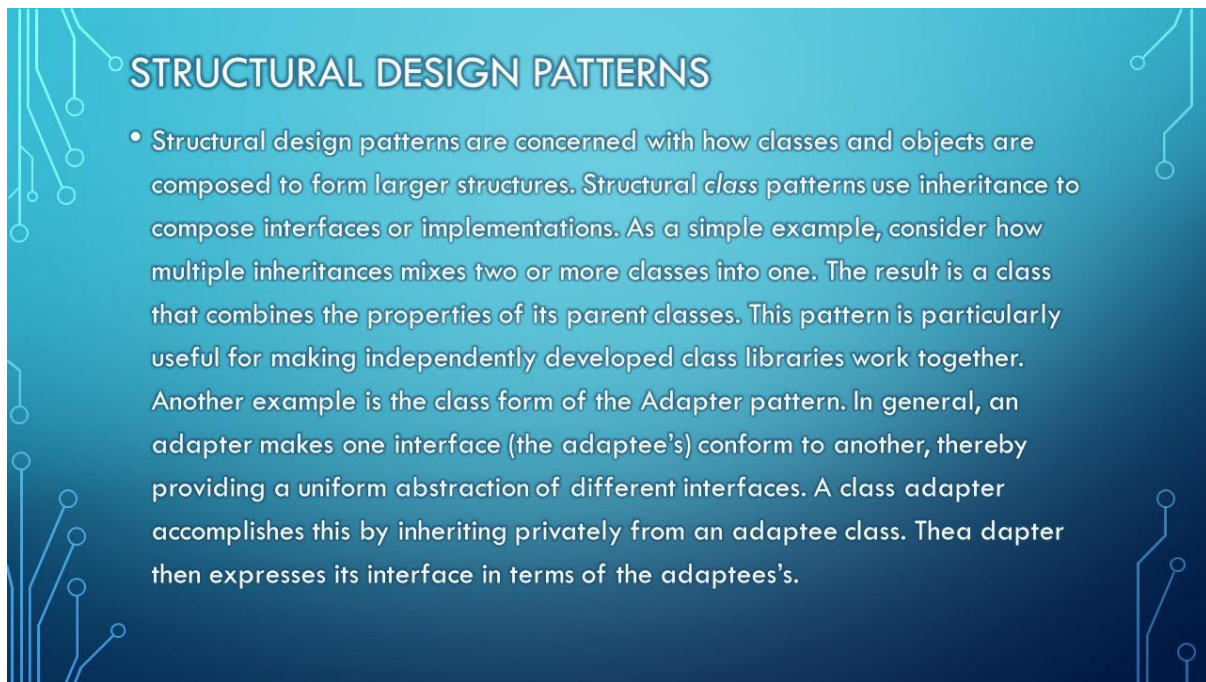
I teach computer programming, and this can be a tough and boring subject. Blended learning can help liven up the class and keep students' attention.

There are many difficult-to-understand concepts, for example, pointers, and complicated algorithms, for example, sorting, that will be hard for many students to grasp by merely listening to a lecture on it. Superlative students may work hard to read textbooks or web pages to understand them, but the average student will often just remain ignorant unless proactive help is given.

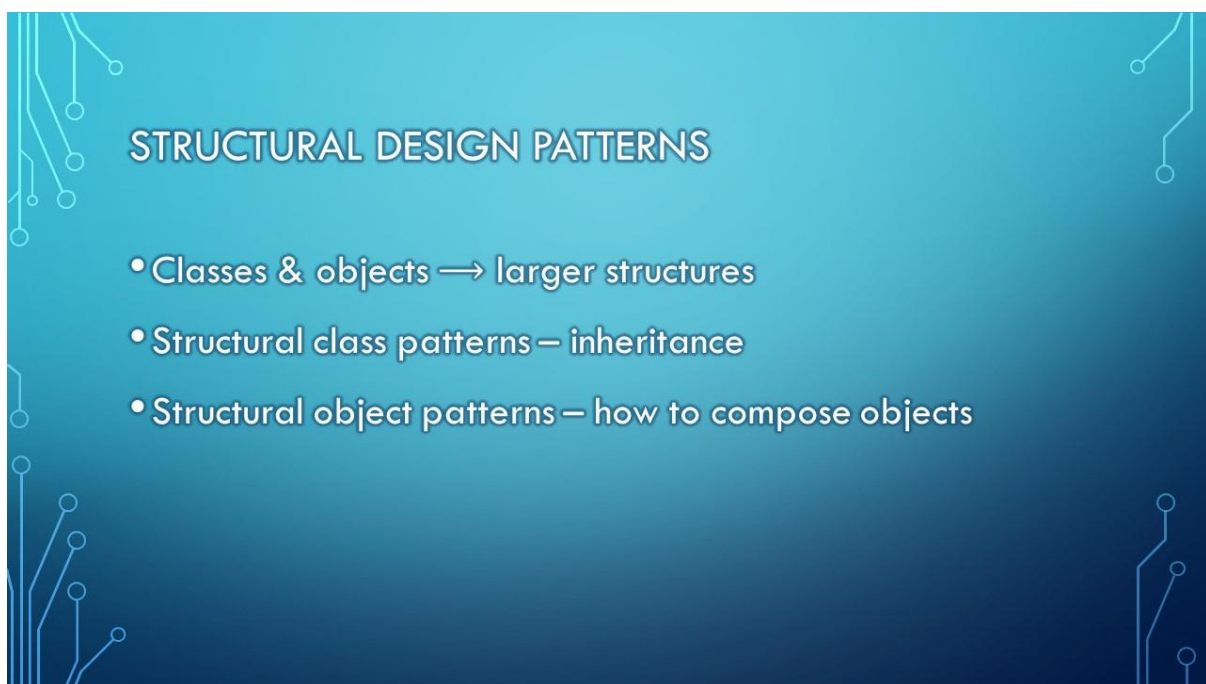
Most of my illustrations in this chapter are taken from my experience teaching computer programming classes.

## **Lively Lectures**

The first thing is to keep your lectures themselves lively. Do not read the slide – the student can read the slide themselves. Reading the slide makes for a boring lecture. One way to avoid reading the slide is to minimize the text on the slides – avoid putting full sentences on the slides, as shown in Figure 1. Instead, just put enough words in point form to remind you what you are going to talk about, as shown in Figure 2.



*Figure 1: Example of a slide with too many words and full sentences*



*Figure 2: Example of a point-form slide*

Practice speaking with inflection and varying tone. We have all experienced the boring lecturer who drones on in a monotone. Throw in a relevant joke or two here and there.

To help students remember the important points, use the “preview, view, review” technique – i.e. “Tell them what you are going to tell them. Then tell them. Finish by telling them what you have told them.” Of course, the first and final one should be just point summaries, while the middle is your full lecture on the topic with all the details.

Finally, show your students that you care. “People won’t care how much you know until they know how much you care,” as Theodore Roosevelt is reputed to have said. Whether he said it or not, experience shows us this is very often true.

### **Divide your Drone**

People often lose concentration after some time of listening to a lecture, though lively lecture techniques as stated above can help make this duration longer. Therefore, one way to deal with this is to break up a long lecture into segments using different activities.

One way to effect such a break is to use phrases like “Turn to your neighbour and...” – and give them a question to discuss. After they have had the chance to discuss possible answers, call upon someone to tell the class their answer. This is a little less intimidating than just asking a question then immediately calling upon someone to give his or her answer because the students would have had the chance to discuss possible answers before you call upon someone to share his or her answer.

If the student gives an incorrect answer, try to avoid saying “You’re wrong,” but rather, lead them to the correct answer in a conversational manner. This is to avoid discouraging students.

### **Action Demonstrations**

If you bring along props to help you demonstrate something you are trying to teach, it can help students revive their interest. For example, when I teach recursion (a programming technique) I sometimes bring along a “Tower of Hanoi” I constructed from one of my children’s toddler toys, as shown in Figure 3.



*Figure 3: Tower of Hanoi toy*

Instead of just teaching the concept of recursion directly, I could use this prop to show what happens when you perform this recursive technique using this prop.

As a secondary school student, I knew that we cannot have perpetual motion machines, but I did not understand why. So, when I went to university, I thought that this was my chance to find out. During my first year of university, I made an appointment with a physics professor and went to see him, and asked him, “Why is it that if I hook up a generator to a motor and then the motor back to the generator, it cannot make a perpetual motion machine?”

The professor gave me a long and theoretical explanation about friction and efficiency and formulae and other things like that. I left his office feeling completely unsatisfied. While I understood the mathematics to a certain extent, I didn't **really** understand **why**.

Then, some months later, at a physics class (with a *different* professor), he had a big flywheel with a hand crank attached to a generator. The output of the generator was attached to a light bulb with a light switch. He asked for a volunteer to crank the generator, so I volunteered.

I started cranking the generator, and it was quite light. Then, he flipped the light switch, and suddenly, the cranking took more effort! I could *feel* the difference in how much effort I had to exert to crank the generator after that! Eureka! **Now** I understood **why** the perpetual motion machine could not work!

Not only did this experience make the abstraction concrete to me, I could also relate it to my life experiences. So the concepts that the first physics professor explained but failed to get me to really understand now became real to me.

The second professor, in bringing the generator-flywheel-light setup into the lecture hall, was using an action demonstration to help keep his students' interest.

Another method of doing action demonstrations I have used is just to borrow from students sitting in the classroom various objects they already have in their possession. For example, when teaching the Computer Science concept of linked lists, I might borrow several objects from various students and then use those objects to form a pretend linked list on the teacher's table in front of me with those objects.

The advantage of this method of doing an action demonstration is that you do not even need to prepare your own props. Of course, this is only possible if the action demonstration you want to do can be done with generic objects.

## **Evocative Examples**

An evocative example is an example that will evoke a feeling in the audience. This will help the audience grasp the concept being taught. A good evocative example will help the audience connect to the concept.

The anecdote I related in the previous section, about the generator flywheel and light bulb demonstration, is an evocative example if we told it as a story instead of demonstrating it in class with props. By telling the other students the extra effort I had to exert upon the handle of the flywheel when the switch was turned on, the other students can imagine the feeling without having to experience it themselves because it is something that they can relate to.



It is also an example of the educational pattern Concrete to Abstraction (Chai, 1996) which states that, when introducing something unfamiliar to students, it is better to start with a concrete example which students can relate to before giving the abstraction.

The examples should be something your students can relate to their own lives. If you use examples that they cannot relate to, then their efficacy in helping the students understand the concept is curtailed.

An example of this is how I used to teach the concept of stacks in the class, Data Structures and Algorithms, when I first returned from the USA. I used to just tell them that stacks is a data structure just like cafeteria plate stackers, and you can just push and pop plates like you do there. However, I did not realize at first that Malaysians generally have never seen such a thing, and so did not know what I was talking about in my example.

In American cafeterias, there are special spring-loaded plate stackers, for example, the one shown in Figure 4.



*Figure 4: American-style spring-loaded plate stacker*

As one pushes plates onto the top of the stack, the springs compress and the top plate remains at more or less the same position as the previous top plate. As one takes (or pops) a plate off the top, the springs expand, and the lower plate is pushed up to more or less the same level as the previous top plate.

So, my example is evocative for American college students who are used to seeing such devices. However, the example is not evocative for Malaysian university students who have never seen one. Therefore, I nowadays either do not use this example at all to explain the concept of stacks, or I first explain this contraption to the students.

An example that *is* evocative for Malaysians is the related data structures and algorithms concept of queues. We are familiar with standing in queues to buy tickets, at the post office, at the supermarket, etc. So I can simply point to this to help the students understand the concept of queues in data structures and algorithms, without having to explain it too much, and can then go on to the programming technicalities of how to implement a queue.

Sometimes it might not be necessary to state the abstract principle explicitly, because the students can already grasp and abstract it for themselves from the examples you give. However, for more complex abstractions, you will still need to explain the abstraction, as some nuances and subtleties of the concept might not be noticed by the average student from the examples.

This is the case in the queue example above. There are various technical matters about implementing queues in a programming language beyond the simple and familiar experience of us queuing up in real life, so after they have grasped the concept, I need to explain these technicalities.

## CASE STUDIES

### 1. Action drawings

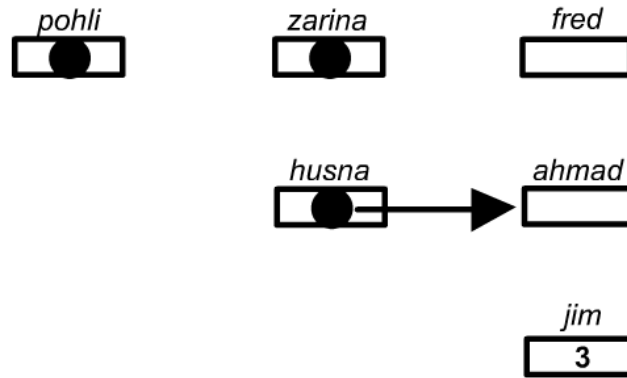
Since virtually all classrooms come with a whiteboard, we can also draw on it to help teach our students. Most of us have seen the cool animations on YouTube that teach something by using an animation that appears to be just black markers drawing on a whiteboard.

Of course, when you are making your own drawings on the whiteboard, you will not be able to make those fantastic artistic illustrations – they’ll be more likely to be stick figures or geometric shapes and lines. But because you are there in their presence and you can speak animatedly as you draw, this can also help keep students’ attention instead of just one PowerPoint slide after another as you drone on and on.

I can even teach programming with such drawings. For example, when teaching pointers in a C programming course, I might show this code on the screen:

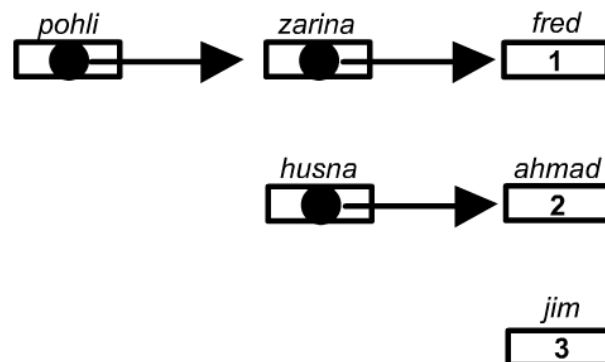
```
int fred, ahmad;
int jim=3;
int *zarina;
int *husna=&ahmad;
int **pohli;
fred=1;
ahmad=2;
zarina=&fred;
pohli=&zarina;
```

After that, I head over to the whiteboard and start drawing boxes, which I label “fred”, “ahmad”, “jim”, “zarina”, “husna” and “pohli”, as I point out the lines in the code. As I get to `jim=3`, I write the number “3” in the box I had labelled “jim” earlier. Then when I get to `husna=&ahmad`, I draw an arrow from “husna” to point to “ahmad”, and explain to the students that the ampersand is to get the address of “ahmad” and that is put into “husna”. This illustrates the concept that “husna” is a pointer and it receives the address of “ahmad”, as can be seen in Figure 5.



**Figure 5:** After the initialization is completed

That completes the initialization section, so I go on to the executable section, with “fred=1” and I write “1” inside the box I had labelled “fred”. Then I get to “ahmad=2” and I write “2” in the box labelled “ahmad”. Then I get to “zarina=&fred” and I tell the students, “The ampersand is asking for the address of fred, so I take that address and put it into zarina,” while I draw an arrow from the box labelled “zarina” to the box labelled “fred”. Finally, I get to “pohli=&zarina” and note that the ampersand again is getting the address, this time of “zarina” and we put that into “pohli” – and I draw the corresponding arrow, as can be seen in Figure 6.



**Figure 6:** At the end of the execution

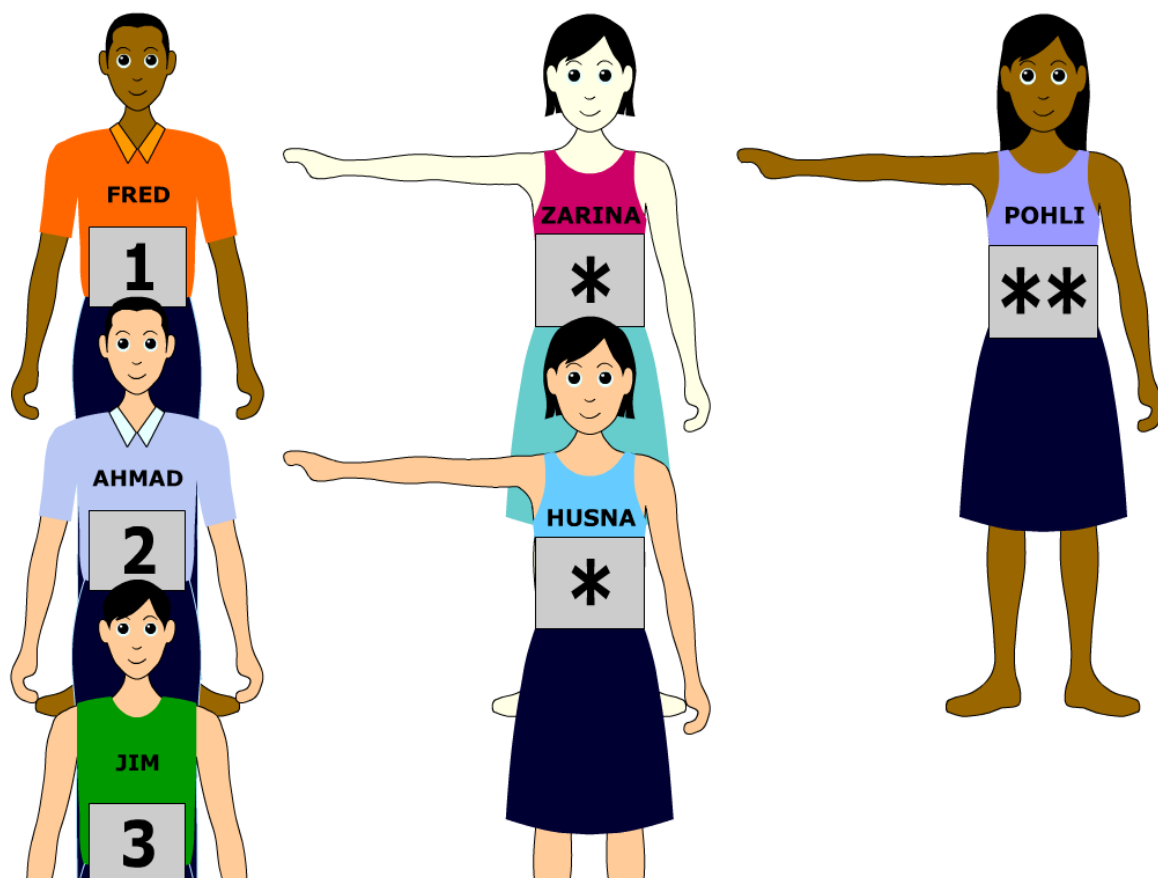
After that, I can continue to use the picture to explain the concepts of dereferencing and referencing, and multiple dereferencing and assignments using pointers. By pointing along the boxes and arrows I am referring to, at the same time as I point to the corresponding lines of code, the students can then visualize what the code is doing.

## 2. Role Plays

If you teach law or sociology, you might be well-acquainted with role-plays. But we are not limited to these literal ways to do role-plays. You might be surprised to know that I teach many Computer Science concepts with role plays as well!

I can teach the very same concept from the action drawing example above by calling out students to play the different roles of “pohli”, “zarina”, “fred”, “husna”, “ahmad” and “jim”. As I point out the lines in the code, I arrange the students correspondingly. At “jim=3”, I ask the student playing “jim” to hold up 3 fingers. Then, at “husna=&ahmad”, I ask the student playing “husna” to literally point at “ahmad”, and explain to the students that the ampersand is to get the address of “ahmad” and that is put into “husna”. This illustrates the concept that “husna” is a pointer and it receives the address of “ahmad”.

That completes the initialization section, so I go on to the executable section, with “fred=1” and I have the student playing “fred” hold up one finger. Then I get to “ahmad=2” and I ask the student playing “ahmad” to hold up two fingers. Then I get to “zarina=&fred” and I tell the students, “The ampersand is asking for the address of fred, so I take that address and put it into zarina,” and I ask the student playing “zarina” to point at the student playing “fred”. Finally, I get to “pohli=&zarina” and note that the ampersand again is getting the address, this time of “zarina” and we put that into “pohli” – so I ask the student playing “pohli” to point at the student playing “zarina”. The result is something similar to the cartoon shown in Figure 7.



*Figure 7: Cartoon illustrating the results of the role play.*

After that, I can continue to use the arrangement of students to explain the concepts of dereferencing and referencing, and multiple dereferencing and assignments using pointers. By pointing to the students and the position of their hands, at the same time as I point to the corresponding lines of code, the students can then visualize what the code is doing.

This is more interesting than just drawing on the whiteboard, as I usually try to get the students to cheer and clap for their fellow-students who are “acting”. I make it like a game show or something where the audience cheers the contestants.

### **3. Turn to your neighbour and...**

Problem-based learning can help encourage people to harness their prior knowledge to increase their knowledge and learn new things. This method can be more effective because, in the process of struggling to figure out the solution to the problem, the student is no longer merely passively imbibing the information given by the lecturer, but actively engaging their mind to discover (Schmidt, Rotgans, & Yew, 2011).

One way to harness mini-problem based learning during lecture is to ask students to solve simple problems based on what you had just taught. For example, after teaching about pointers, and showing the earlier example with Jim, Husna, Pohli, etc., we could show Figure 6 and ask:

- What is \*zarina?
- What is \*\*pohli?
- What happens if I execute zarina = &ahmad?
- 

But we don't just ask the crowd. We ask the students to turn to their neighbour and discuss possible answers. Then we choose someone from the crowd, after they have had the chance to think about it for several minutes, for their answer.

If the answer is wrong, do not berate the student to make them feel small. Instead, encourage them by hinting and suggesting, going back to the drawing and leading them to the correct answer.

### **In-class online quizzes as a review**

In my typical programming classes, in one lecture, there could be many important concepts discussed. Most students will not be able to grasp them all the first time they hear it. So, a review is necessary.

One way to do a review of the important points that I have had very positive feedback from students before is to use an engaging online quiz site like Kahoot. I set it up like a game show, and Kahoot's music is usually upbeat and exciting, so it adds to the fun atmosphere.

If I run the Kahoot at the end of the lecture, I will set the questions to go over the important points of the current lecture. If I run the Kahoot in the middle of the lecture, I will set the questions to go over the important concepts from the middle of the previous lecture until the middle of the current lecture.

After each question, I will usually explain why the correct answer is correct, and why the wrong answers are wrong unless everyone got the question correct.

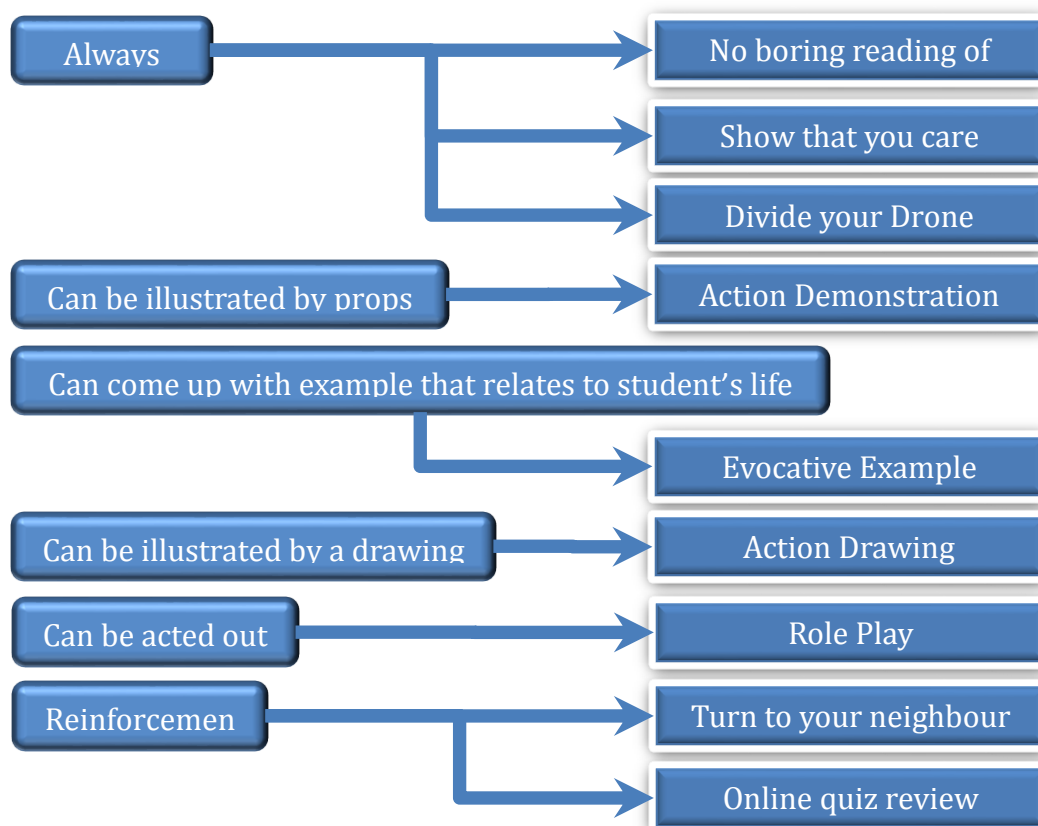
Then, at the end of the Kahoot, I give sweets as prizes to the top three scorers. This is a very inexpensive way to motivate them, as sweets are cheap, yet students like them.

One downside of Kahoot is that all the questions and answers are shown only on the front projection screen. In some classrooms, this could mean that students seated at the back cannot see the bottom of the screen and will have difficulty seeing the answers. In those situations, it may be better to use an app like Quizizz instead, which shows the questions and answers on the individual smartphone screens. However, I have found that Kahoot produces better classroom interaction than Quizizz because everyone is in synch and I can explain the answers after each question is completed.

## Conclusion

In this chapter, I have given some suggestions to help you to keep your students' attention. You can use these suggestions in addition to the online blended learning methods discussed in the other chapters of this book, to help your students' learning.

Figure 8 suggests a way of deciding when to use each of these techniques.



**Figure 8:** When to use these techniques

Remember, these are only suggestions. Each of us is different. We have different personalities, different backgrounds, etc. So something which works for me might not work so well for you. Try things out, keep what works, and discard what does not.

Happy teaching!

## References

- Bradbury, N. A. (2016). Attention span during lectures: 8 seconds, 10 minutes, or more? *Advances in Physiology Education*, 40(4), 509–513. <https://doi.org/10.1152/advan.00109.2016>
- Chai, I. (1996). Concrete to Abstraction. In *OOPSLA “96 Educators” Symposium*. Retrieved from <http://pesona.mmu.edu.my/~ianchai/writing/concrete2abstraction.html>
- Frederick, P. J. (1986). The Lively Lecture—8 Variations. *College Teaching*, 34(2), 43–50. <https://doi.org/10.1080/87567555.1986.9926766>
- Middendorf, J., & Kalish, A. (1996). The “Change-Up” in Lectures. *National Teaching & Learning Forum*, 5(2), 1–12. [https://doi.org/10.1016/S0733-8619\(03\)00096-3](https://doi.org/10.1016/S0733-8619(03)00096-3)
- Schmidt, H. G., Rotgans, J. I., & Yew, E. H. (2011). The process of problem-based learning: what works and why. *Medical Education*, 45(8), 792–806. <https://doi.org/10.1111/j.1365-2923.2011.04035.x>
- Wilson, K., & Korn, J. H. (2007). Attention During Lectures: Beyond Ten Minutes. *Teaching of Psychology*, 34(2), 85–89. <https://doi.org/10.1080/00986280701291291>

## ADEPT ELITE WORKSHOPS





# 10

## **Emerging Technologies in Blended Learning Environment: A case study in Interface Programming and Layout class**

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**About the author:**

**Ms. Nazirah Mat Sin** obtained her first degree in Bachelor of Multimedia (Honours) (Digital Media) from Multimedia University, Malaysia in 2001. She received her Master of Science (Creative Multimedia) from the same university in 2009. In 2010 she obtained her second masters in Master of Instructional Technology from University of Malaya, Malaysia. Her research interests include instructional and educational technology, computer graphics and multimedia. She is currently a lecturer in Faculty of Creative Multimedia, Multimedia University. Nazirah is a TALENT for ADEPT and Team Leader for the Visual Content Workshop Series, as well as the designer for the visual materials for ADEPT. She is

HRDF and Google Educator Level 1 certified and conducts training for the e-Learning and WOW Workshop Series.

**Abstract**

In 2015, there were 80,000 of education-related apps available in the market. These applications are also known as emerging technologies or blended learning tools, and they have been widely used by academics as part their learning and teaching tools in a blended learning environment which resulted in a positive learning outcome to both learners and lecturers. Using an Interface Programming and Layout subject as an example, this article describes the utilization of selected blended learning tools in the Interface Programming and Layout class. On top of that, this article discusses teaching and learnings issues that have led to the need to integrate blended learning tools in Interface Programming and Layout subject. The examples of blended learning tools applied in the classroom include Padlet, Kahoot! and YouTube. These tools were used to introduce new topics, while others were used as part of assignment creation such as producing video in YouTube for report documentation etc. Besides blended learning tools, gamification and jigsaw puzzle techniques have been adopted and adapted as part of the teaching and learning activities. At the end of the 14 weeks trimester, it has been observed that utilizing blended learning tools in the course had created more dynamic teaching and learning outcomes.

**Keywords:** *Emerging technologies, Blended learning tools, Teaching and learning activities, Academics, Positive outcomes*

## INTRODUCTION

According to the Malaysian Communications and Multimedia Commission (2017), there are 24.5 million internet users in Malaysia. This number comprises almost 77% from Malaysia population. Out of these users, almost 68% of the internet users utilize the internet for learning purposes. These users include students and other individuals who are not officially pursuing their study. A report produced by Malaysia Communications and Multimedia Commission (2017) shows that internet has become one of the enablers for individuals to learn.

The high usage of internet for education purposes is due to the vast emerging of technologies. These emerging technologies are not only useful for social networking and communicating purposes but can be adaptable and adjustable for educational usage. As an example, Facebook not only is beneficial for communication, but it is used as the medium for discussions among students and their lecturer asynchronously. These emerging technologies have continuously transformed our education system specifically in higher education institutions since the past decade (Bhuvanewari & Beh, 2008).

However, emerging technologies term are being used without one clear definition. Emerging technology terms varies from one domain to another. In this article, emerging technology refers to (1) new application (2) existing application but with different usage (3) digital tool (4) non-digital tool such as concept or instructional strategy (5) use to meet learning purposes (Cardullo & Clark, 2016; Decker & Woodruff, 2015; Patient & Agbobli, 2015; Hooft, 2009). Emerging technology may comprise technology trends and instructional trends. The examples of technology trend include (but not limited to) cloud-based application, social media application, virtual environment etc. while the examples of instructional trends are (but not limited to) learning experience design, games and gamification, microlearning etc.

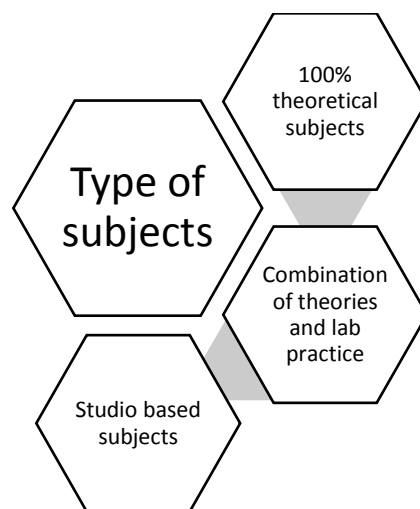
As mentioned earlier, emerging technologies have transformed the practice of learning and teaching specifically in higher educational context. Face-to-face conventional classroom is no longer the sole method of information and knowledge delivery. With the rise of emerging technologies, all higher educational institutions in Malaysia are to combine online learning and conventional setting classroom and this is known as a blended learning environment. In this article, blended learning refers to teaching and learning practice that covers both face-to-face and online instruction. A sum of the face-to-face instruction is substituted with online learning activities. These learning activities allow students to acquire learning using self-phase learning approach. While the face-to-face practice can be solely traditional lecture or integration of technology in lecture setting (Jamani & Figg, 2018; Cordie, Witte, & Witte, 2016; Alberto & Coutinho, 2015; Thindwa, 2015; Zhou, 2015 & Cano & Ion, 2014).

With the realization of emerging technologies effect on education specifically in a blended learning environment, this article is written to provide examples of how blended learning tools are fully optimized in Interface Programming and Layout class. Interface Programming and Layout is offered in the department of Interface Design under Faculty of Creative Multimedia, Multimedia University.

## USING TECHNOLOGY IN THE FACULTY OF CREATIVE MULTIMEDIA

The Faculty of Creative Multimedia is a faculty that integrates emerging technologies, multimedia with creativity and aesthetic elements for the benefits of society. Students are taught of optimizing emerging technologies to produce product and content that are creative and beyond expectation. At the same time, the outputs produced by these students should be advantageous to their target audiences. Some of the outputs include websites, animation, product appliances, game etc.

Programmes that are offered in the Faculty of Creative Multimedia include Advertising Design, Animation & Visual Effects, Interface Design, Media Arts and Virtual Reality. Students who have enrolled in the programs are taught with subjects that would equip them with relevant skills and knowledge for their future career. Some of the subjects taught include visual research and communication, photography, drawing, computer graphics, web design, sound design, interface programming and layout, virtual reality design etc. In general, subjects that are taught in the Faculty of Creative Multimedia can be grouped into three types of subjects: First, is the full theoretical subject such as Creative English. Second, is a combination of theories and lab practice such as Interface Programming Layout. Lastly, is studio-based subjects such as Drawing (refer to Figure 1).



*Figure 6: Type of subjects offered in the Faculty of Creative Multimedia*

### Interface Programming and Layout

Interface Programming and Layout is one of the courses taught in the Department of Interface Design in Creative Multimedia Faculty. The subject consists of 3 credit hours. The duration of the class is 4 hours per instructional week. The nature of the subject is a combination of theory-type content and lab practice.

Previously in Interface Programming and Layout subject, students of the class were given lectures, labs and consultation sessions with the lecturer. Lectures were conducted in teacher-learning centred environments, where much of the time, the lecturer would be doing the talking and students would listen passively. During labs sessions, students would follow the demonstration showed by the lecturer. Consultation hours were conducted, where students would meet face-to-face with the lecturer to show progress and gain feedback on their assignments. Although these approaches seemed feasible, improvement is still needed to

increase the teaching and learning quality. At the same time, new approaches are in need, especially to resolve some of the teaching and learning issues that had surfaced.

## **TEACHING AND LEARNING ISSUES**

The teaching and learning issues that have surfaced in Interface Programming and Layout subject can be categorized into three areas. The three areas are teaching methodology, students, and content.

### **Teaching methodology**

As mentioned earlier, previously the subject had been taught using teacher-centred approach. When using this approach, the main challenge was the lecturer of the subject become the active learner. As the lecturer explained the subject, she became more expert and understood about the subject more. Contradictory, students of the subject became less involve and engage in the learning process. Consequently, the students level of understanding of the subject was at the minimal level. Although learning had occurred, the level of learning was insufficient.

### **Student**

Currently, most students who enrolled in the subject are categorized as the millennial generation. These students have very short attention span and could easily get distracted by mobile devices and computers that surrounded them. It is a challenge to get them to engage and be involved in class activities such as class discussion. On top of that, the students felt that four hours of class duration is too long for them. These students preferred the blended learning approach to conventional teaching methodology.

### **Content**

In Interface Programming and Layout subject, half of the content was in presentation format. It requires lectures to students. Since long lecture hours were no longer effective especially with the students' short attention span, new approaches such as introducing gamification technique, using video and other blended learning approaches seem more suitable. The new approaches will not only help to increase students' attention span, at the same time students can read and learn the content more than once.

On top of that, documentation on teaching and learning materials are very important for lecturer especially to meet the standard requirement of Multimedia University. Lecturers are required to document all matters pertaining to the subjects they are teaching such as teaching plan, assignments briefs, students' attendance sheets, assessment forms, students' result etc. Previously, all materials were stored on personal computers. A digital space or cloud to store these teaching and learning material for every semester is important in order to enable lecturer to retrieve the information ubiquitously, especially for course evaluation purposes.

In conclusion, the teaching and learning issues presented earlier in this article had led to the need to explore and utilize blended learning tools in teaching and learning environment. Specifically, this article presents the usage of blended learning tools in Interface Programming and Layout subject.

## **AN OVERVIEW OF BLENDED LEARNING TOOLS USAGE IN INTERFACE PROGRAMMING AND LAYOUT SUBJECT**

Although thousands of blended learning tools and emerging technologies can be used for teaching and learning purposes, in Interface Programming and Layout subject only a few of the tools were utilized. The tools include Google Classroom, Padlet, Kahoot, and YouTube. On top of that, gamification and jigsaw puzzle techniques had been introduced in the teaching and learning activities (refer to Table 1).

Google Classroom was utilized as a platform to gather students in a virtual environment. At the same time, Google classroom was used as a platform to make announcements about class, exams, and assignments upload for students. It was used as a one-stop centre for students to download and upload relevant materials. Besides that, Google Classroom had been used as a digital repository for in Interface Programming and Layout subject and other subjects that had been taught by the lecturer. Since Google Classroom provides an unlimited storage, it is a useful platform to store any relevant materials. It is a good knowledge management strategy.

Padlet was fully utilized for many various class activities that involved all students in Interface Programming and Layout subject. One of the activities that used Padlet is the ice breaking activities. Besides ice-breaking activities, Padlet was used as part of students' assignments. Padlet had been the selection application, due to it easy-friendly features and the application does not require any registration to use the tool.

Kahoot! was used for two purposes. The first intention was to introduce new topics to the students. Kahoot! application could easily engage students in any fun learning activities. Students easily get excited and motivated to learn about the new topic. Through observation, students learned best when they don't realize that they are learning. The second intention of using Kahoot was to seek students' level of understanding on a specific topic.

YouTube had been used as part of content-creation by the students. Instead of using YouTube to retrieve information, YouTube is created by the students as part of their assignments. Through observation, it was found that these students were more comfortable conducting presentation using YouTube than face to face presentation in front of their peers.

Gamification technique had been designed as part of the class teaching and learning activities. Students were to study on a specific topic before participating in the game's design during the face-to-face lecture session. Students were more excited, involved and engaged in the activities.

The last approach was the adaptation of jigsaw puzzle method. Students in a group studied on a specific software became more expert in using the software than their other peers. The group of students was to train their peers in using the software. The method had helped students to be responsible toward their own learning and others in the class. This method helped students to retain their learning from short-term to long-term memory. They understood better since they had taught their friends about using the software. Details of how each of the tools had been utilized can be found in the next section.

**Table 4:** Summary of blended learning tools usage in Interface Programming and Layout class

	Purpose of Usage
Google Classroom	<ul style="list-style-type: none"> <li>• Make announcement such as teaching plan, class schedule, lecture note</li> <li>• A place for students to submit assignments</li> <li>• A place to review and grade assignments.</li> <li>• Documentation of class materials</li> </ul>
Padlet	<ul style="list-style-type: none"> <li>• Students do assignments in Padlet</li> <li>• An icebreaker activity</li> <li>• Collect students' information and contact number</li> </ul>
Kahoot	<ul style="list-style-type: none"> <li>• To introduce new topics to students</li> <li>• To review students' understanding of a specific topic</li> </ul>
Gamification (face-to-face method)	<ul style="list-style-type: none"> <li>• Introducing quiz game to teach new subjects to students</li> <li>• Use win lose or draw approach</li> </ul>
YouTube	<ul style="list-style-type: none"> <li>• Students created their own YouTube as part of assignments</li> <li>• To check students' understanding or acquire of information on a specific topic</li> </ul>
Expert group method / Jigsaw puzzle approach	Taking the concept of Jigsaw puzzle approach where students learn a specific content and teach their peers, students of the class learn on their own about a specific website builder application and teach their peers.

## A CASE STUDY IN INTERFACE PROGRAMMING AND LAYOUT CLASS

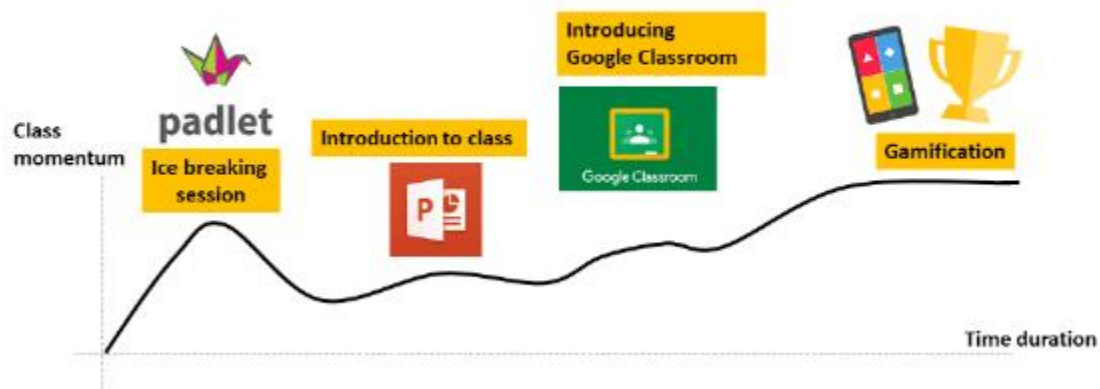
Interface Programming and Layout is one of the courses taught in the Department of Interface Design in Creative Multimedia Faculty. The subject consists of 3 credit hours. The duration of the class is 4 hours per instructional week. The nature of the subject is a combination of theoretical content and lab practice. 14 students had registered for the Interface Programming and Layout in 1720 trimester.

### Week 1

During the first day of the 14 weeks, a lot of activities were introduced to students. Activities that were applied during the first meeting included ice-breaking activities using Padlet, Google Classroom and gamification techniques (please refer to figure 2).

Since these students were known for their short attention span, activities were planned in consideration of students' attention, engagement and focus in class. As shown in figure 2, students were first introduced with ice breaking session, followed by less favourable content which is introducing students on relevant material about the class such as teaching plan, learning outcomes, assignments etc. During this time also, students were informed of the style of the class. Students were informed that Interface Programming and Layout will involve a lot of blended learning strategies, hands-on class activities and less conventional lecture sessions.

Next, students were introduced for the first time with Google Classroom. They were briefed on the general setting. At this stage also, students were invited and automatically registered to google classroom. Students were also informed that Google Classroom would be the main platform for the whole semester. All teaching and learning materials including assignment submission would be done in Google Classroom. Finally, students were introduced with the content of the subject. Instead of providing them with conventional lecture, the lecture was gamified to increase students interest in the subject.



**Figure 7:** Arrangement of class activities to sustain students' engagement and focus in class

Besides students' attention ability, many activities were conducted on the first day due to many reasons. One of the main reasons was to get to know students better such as to know their learning style and attitude. Secondly, this prepared the students for the rest of the 13 instructional weeks of their classes: to get them more comfortable with their peers and to set the style for the class for the rest of the trimester.

Padlet was used for students to introduce themselves. Each of these students were to introduce their names, contact numbers, expectation toward the course and to share an interesting story about themselves. Although the instructions seemed fun and not serious. Information retrieved from these students served for several purposes:

1. To get students name and contact number especially for emergency purposes, submission of assignments etc.
2. To seek students' expectation toward the class and to ensure relevant expectations are met by the lecturer
3. To know briefly about students. Some of the students did mention that they are doing freelance job at the same time.



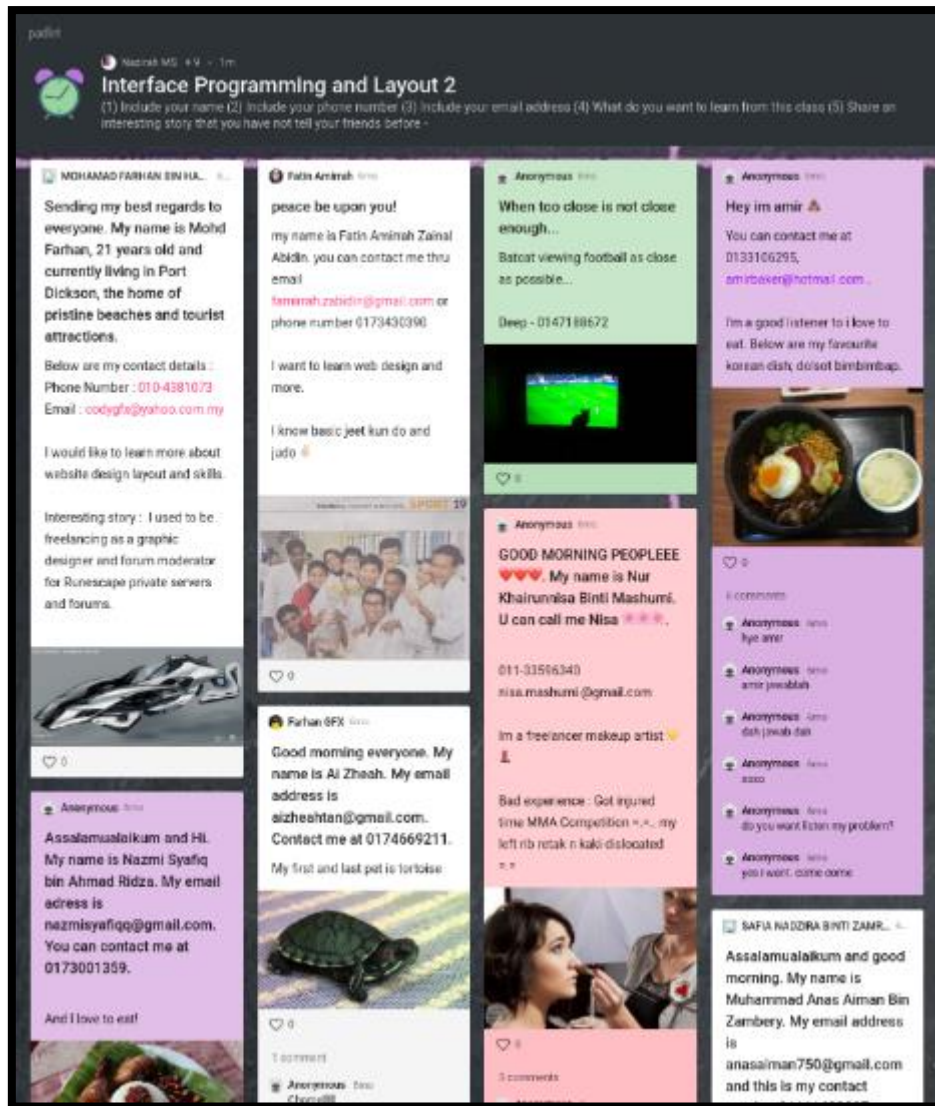
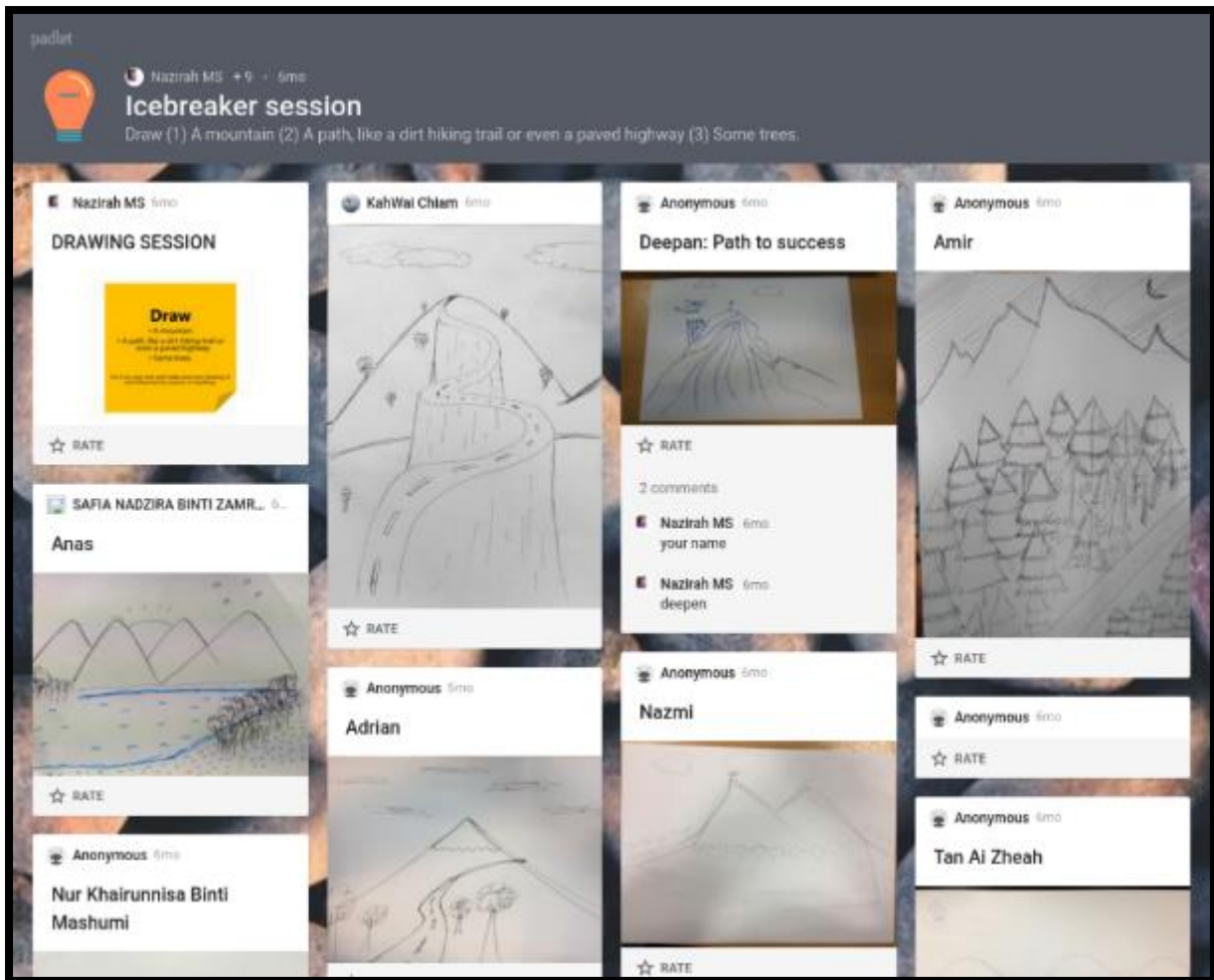


Figure 8 Self-introduction of each student using Padlet

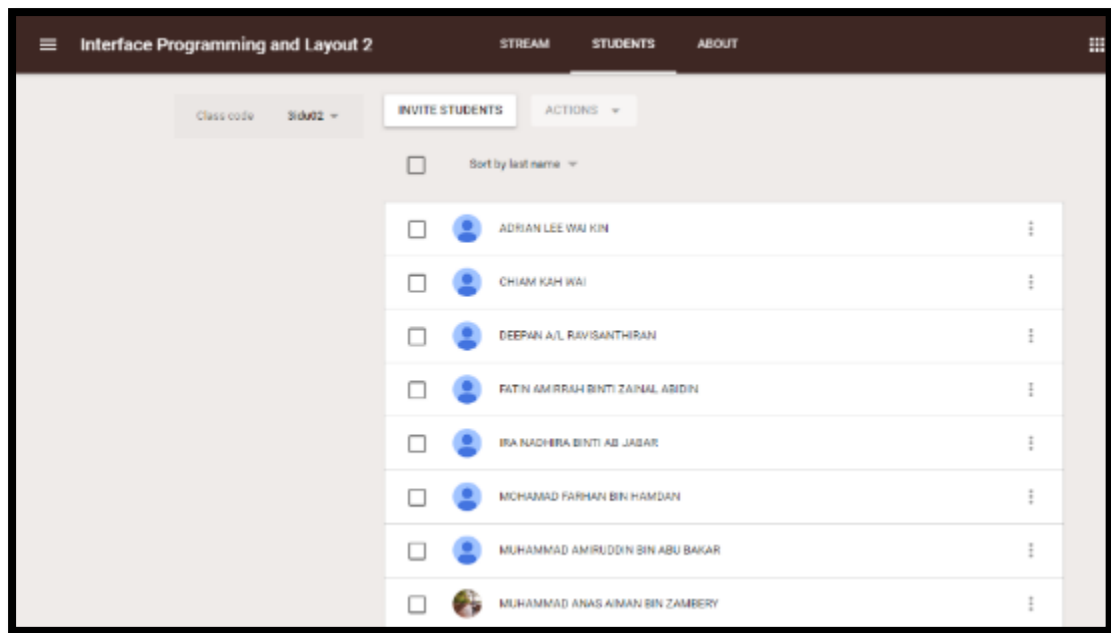
During ice breaking session, students were instructed to draw few objects that would reflect their relationship with family and friends. They were to upload the drawing on Padlet. The activity is conducted on Padlet to encourage students to share their works with their peers. Students enjoyed and engaged in the activity. Part of the reasons was these students can showcase their works. At the same time, these students can see their peers' works. Students enjoyed the session more when they can share and get acknowledged by their peers.



*Figure 9: Ice breaking session using Padlet*

Once done with the ice breaking sessions, students were briefed about Interface Programming and Layout course. Information such as learning outcomes, teaching plan, class schedules, the type of course such as full coursework without the final exam and the teaching approach that would be implanted for the rest of the trimesters were given to students. During this session, the lecturer would do most of the talking while students would listen. At this stage, students could easily get distracted. To avoid students' disengagement, the explanation was kept short, simple and straight to the point.

After the session, to increase students' attention in class, Google classroom were then introduced to students. Since this is their first time using Google Classroom, students were curious and more interested. Students' involvement is essential as they need to register to use Google Classroom application. Since the activity actively involved students' participation, most students were awake and did not get distracted by their handphones. All the students who came during the class managed to enrol in Google Classroom class (please refer to figure 5).



*Figure 10: List of students who enrolled in Google Classroom*

During the last session of the first class, students were already tired. Thus, a few minutes break were given to let students re-energize their mental and motivation. The class then continued with the delivery of content of the subject. Instead of using lecture approach, the lecture content had been gamified. The gamification involved conventional win-lose-draw game and using Kahoot!

In Win-Lose or Draw game, students were given a list of keywords related to the content of the subject. Students were given limited time to seek each definition of the term (refer to figure 6). Once done, the game was conducted. As shown in figure 7, students were engaged and excited when participating in the game. The game was conducted in groups, thus it increased students' teamwork. Students' scores were calculated and included as part of class activities grade (please refer to figure 8).

At the end of the four hours class session, all activities had been concluded and the importance of each game activity had been reviewed and explained its relevance to the subject.

**Win-lose or draw**

1. Personal website
2. Cloud computing
3. App
4. Website
5. World wide web
6. 4 examples of popular email software
7. Social networking?
8. Web 2.0
9. Define Internet
10. Web designer
11. Web programmer

1. Each correct answer = 2  
2. Each incorrect answer = -3  
3. Insufficient answer /almost there = 1

*Figure 11: Win-Lose or Draw Game*



*Figure 12: Using gamification technique in class*

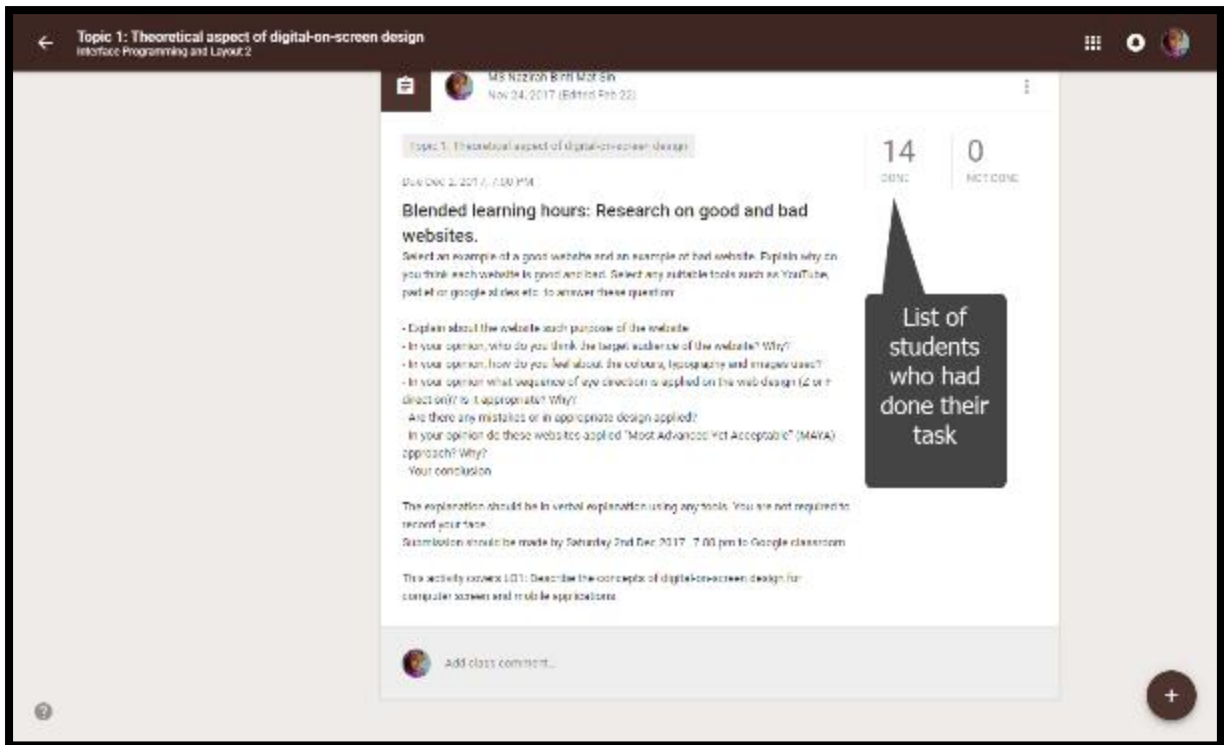
<b>Game Chart</b>				
	Pop quiz & Win-loose or draw	Kahoot	TOTAL	Marks to be added on in class activity
Kah Wai & Deepan	6	4	10 (4)	4
Nazmi & Adrian	8	3	11 (7)	7
Nisa & Ai Zhea	3	4	7 (1)	1
Anas & Amir	15	5	20 (10)	10

*Figure 13: Students' scores*

## Week 2

In the second week of the semester, no face-to-face class was conducted as it was a public holiday. Thus, an online learning was conducted. A graded online activity was created and uploaded in Google Classroom.

In the online activity, students were to select an example of a good website and an example of a bad website. Students were to evaluate the websites based on given set criteria such as explaining the purpose of the website, the colours, typography, and images used in the website, etc. Students were given freedom to evaluate and report the websites using word document, presentation application or video (please refer to figure 9). Freedom was given taking into consideration these students have different learning styles, strengths and weaknesses. For example, some students could explain verbally well while others can write well. Thus, students can choose which method suits their learning strength.



*Figure 14: Instructions had been uploaded on Google Classroom*

Students were given a specific time duration to submit their assignments. In Google Classroom, notification is made in the application. The notification includes submission made on time, late submission, no submission (please refer to figure 10 and 11). At the same time grading could also be done in Google Classroom.



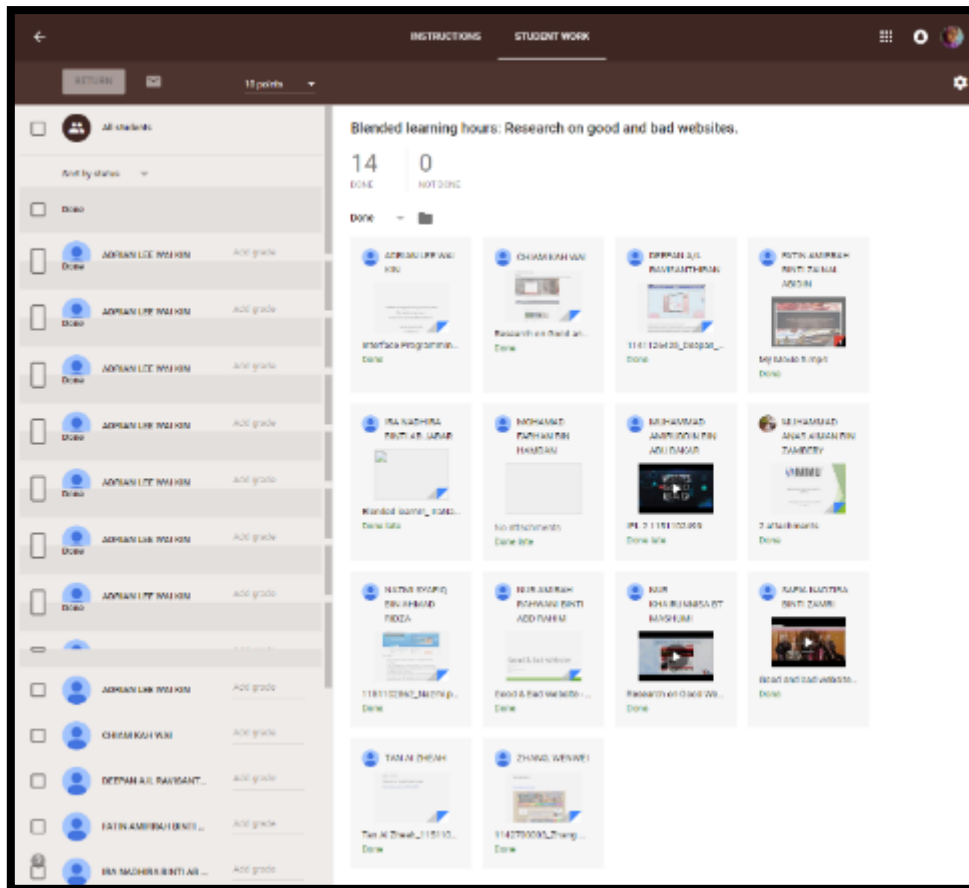


Figure 15: List of students who had submitted their assignments

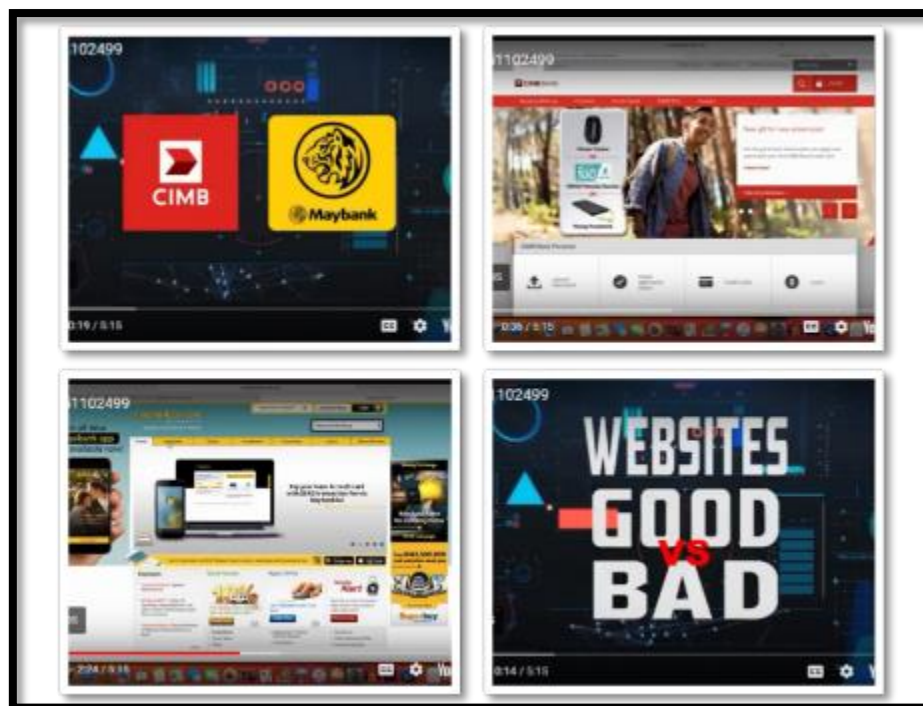
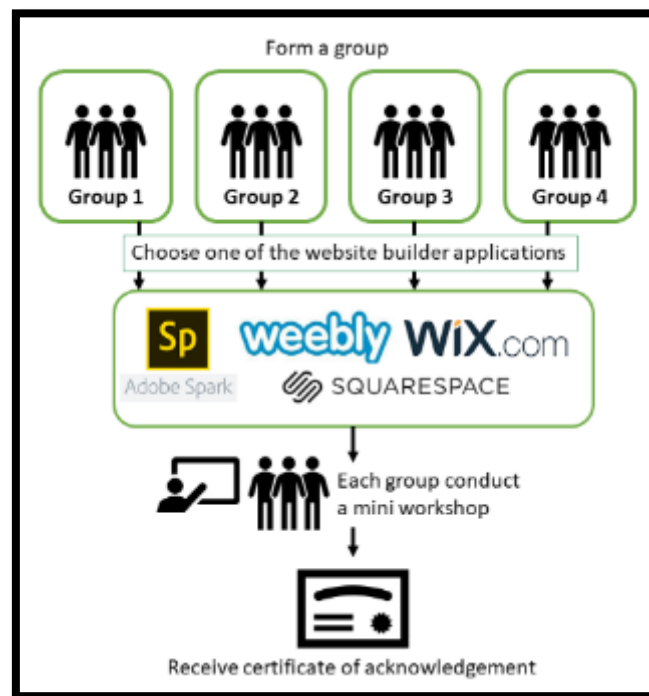


Figure 16: Sample of student's assignment using YouTube

### Week 3

In week 3, students were to conduct an assignment called “Mini Workshop – Teach My Friends” (refer to figure 12). Each group of students was to conduct a mini-workshop for 30 minutes. They were given choices to teach one of website builder applications to their friends. Some of the website builder applications include wix.com, Weebly, Adobe Spark, Square Space etc. After each training session, each group of trainers was given a certificate of acknowledgement.



*Figure 17: Assignment processes*

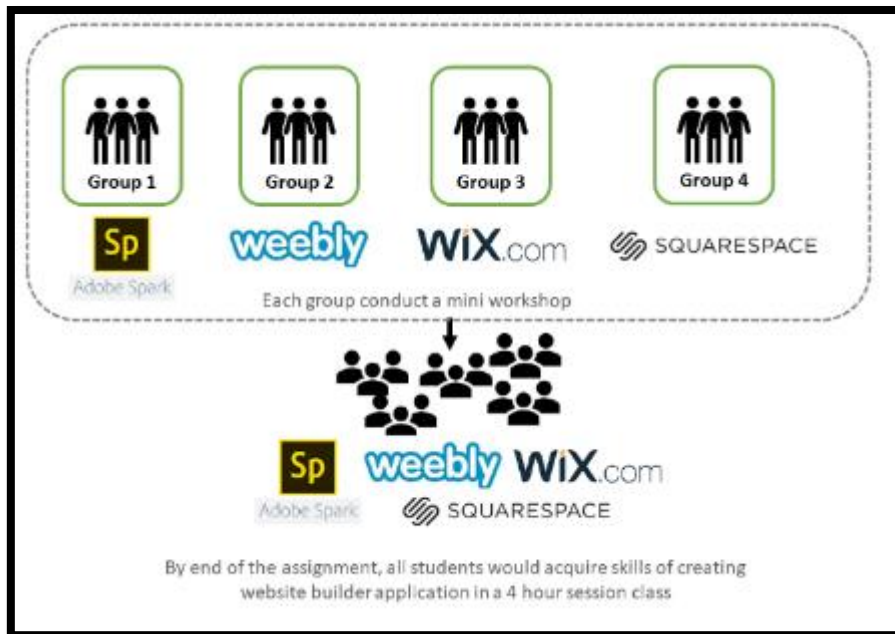
In this assignment, a Jigsaw Puzzle method concept of teaching had been adopted and adapted. According to Strategies: Jigsaw (2018):

*“Jigsaw is a cooperative learning strategy that enables each student of a “home” group to specialize in one aspect of a topic (for example, one group studies habitats of rainforest animals, another group studies predator of rainforest animals). Students meet with members from other groups who are assigned the same aspect, and after mastering the material, return to the “home” group and teach the material to their group members. With this strategy, each student in the “home” group serves as a piece of the topic’s puzzle and when they work together as a whole, they create the complete jigsaw puzzle.”*

Jigsaw puzzle method of teaching had been adapted and adopted in the class because of the method provided many advantages. Some of the advantages include students become actively involved and responsible for their own learning and others. On top of that, students also play roles as a lecturer, facilitator to their friends. Consequently, these students learned from each other. Thus, learning becomes more dynamic and the level of skills and information these students acquired were far more in depth.



Each group of students had selected a specific website builder application. As an example, a group of students had decided to choose Weebly as part of their assignment. Once decided, the students were given a week to study the function and usage of each feature in Weebly. Once they had mastered Weebly application, then they were to prepare materials to teach their peers how to use Weebly to create a website. Materials included presentation slides, Kahoot! and handouts were created by these students themselves. The same processes applied to other groups. Thus, by end of all mini-workshop sessions, the whole class had acquired skills of using four website builder applications in a day. To further increase students' motivation, after each training session students were given a certificate as an acknowledgement to appreciate their effort and skills (refer to figure 14).



*Figure 18: "Mini Workshop" assignment*















*Figure 19: Certificates of acknowledgement were given to the student trainers*

## Week 4

During week 4 of the trimester, students were to understand the processes involved in developing a website from scratch. Based on my prior experiences when conducting the same lecture with the previous cohort, using conventional lecture methods would tire the students. At the same time, it could lead to misconception on the topic. Thus, an unconventional approach had been taken to improve the delivery method of instruction.

Instead of giving long lecture sessions, a microlearning approach had been used in the class. Microlearning approach had been used in delivering the content as the attention span of the students who were also known as the millennial generation can only sustain up to 90 seconds (Eades, 2014). When using microlearning approaches, the content of the lecture was chunked into smaller bytes. Thus, the lecture would be quick and straight to the point. Consequently, students would be more attentive towards lecture.

Based on figure 15, the lecture had been chunked into 6 parts. The first 10 minutes, lectures about general information on the website were given to students, followed by 30 minutes of class activity. At this stage, each student was to decide purposes and target audience for their website. Followed by writing their purposes and target audiences on Padlet. The next 10 minutes, the lecture given about sitemap and then followed by 30 minutes of class activity. During this stage, each student was to draft their sitemap of websites using Padlet. Finally, the last 10 minutes lecture were given on framework and followed by another 30 minutes of individual task where each student was to create their website's framework and place it on Padlet. Once done, students were given time to explain and present their output in front of their peers (refer to figure 16).

Approximate time duration	10 min	30 min	10 min	30 min	10 min	30 min
Types of activities	Lecture: Define the website's purpose and audience	Class activity: Create own purpose	Lecture: Create site map	Class activity: Create sitemap	Lecture: Framework	Class activity: Create Framework
Applications used						
Students' attention level						

*Figure 20: Using Microlearning approaches to sustain students' attention level*

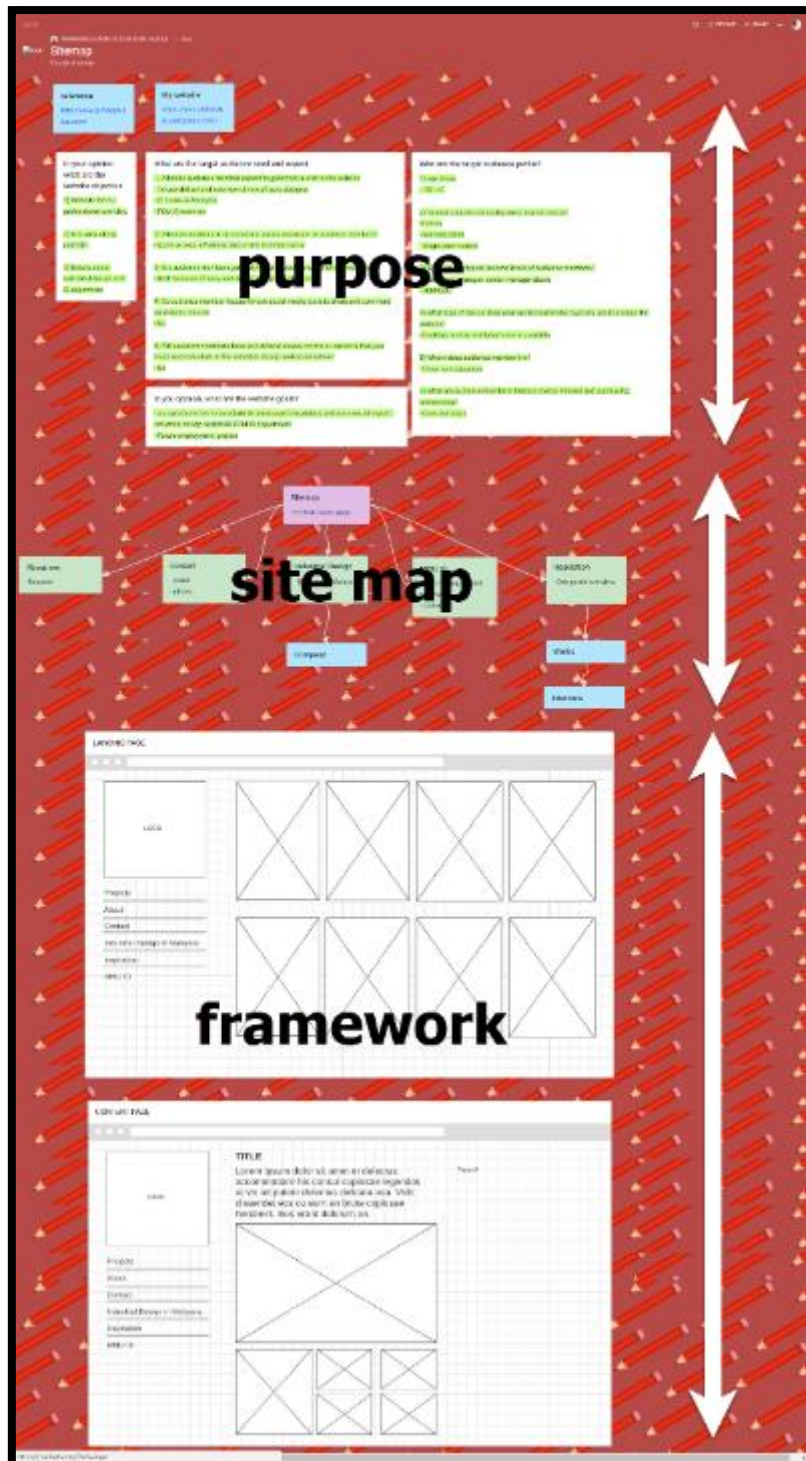


Figure 21: Sample of student's output

## CONCLUSION

In summary, this article had been written to share the implementation of blended learning tools in Interface Programming and Layout class. It is found that utilizing blended learning in the course had created a more dynamic teaching and learning environment. The content or assignment produced by students of the class were rich and varied. Besides that, the lecture materials produced by the lecturer were varied, dynamic and can be reused and improved. Lastly, students were more engaged, involved and responsible toward their own learning. It is hoped information shared in this article would benefit other academics who are searching for ways to start implement blended learning in their classes.

## References

- Alberto, J., & Coutinho, P. C. (2015). Blended Learning. In *Encyclopedia of Information Science and Technology, Third Edition*. doi:10.4018/978-1-4666-5888-2.ch129
- Bhuvanewari, T., & Beh, S. (3 September, 2008). Changes in Learning through Digital Media for Higher Education Institutions. *International journal Mobile Learning and Organisation*, 2(3).
- Cano, E., & Ion, G. (2014). Curriculum Development through Competency-Based Approach in Higher Education. In *Handbook of Research on Transnational Higher Education*. doi:10.4018/978-1-4666-4458-8.ch005
- Cardullo, V. M., & Clark, L. (2016). Universities' Point of View to Introduce Mobile Devices in their Classrooms: Redefining Education using a Common Mobile Platform – The Journey through Implementation. In *Handbook of Research on Mobile Devices and Applications in Higher Education Settings*. doi:10.4018/978-1-5225-0256-2.ch013
- Commission, M. C. (2017). *INTERNET USERS SURVEY 2017*. Cyberjaya: Malaysian Communications and Multimedia Commission.
- Cordie, L., Witte, M. M., & Witte, J. E. (2016). Using Blended Learning and Emerging Technologies to Transform the Adult Learning Experience. In *Handbook of Research on Learning Outcomes and Opportunities in the Digital Age*. doi:10.4018/978-1-4666-9577-1.ch015
- Decker, E. N., & Woodruff, R. (2015). The Role of Robotic Telepresence in the Academic Library. In *Encyclopedia of Information Science and Technology, Third Edition*. IGI Global. doi:10.4018/978-1-4666-5888-2.ch653
- Hooft, M. (2009). Tapping into Digital Literacy with Mobile Devices. In *Handbook of Research on New Media Literacy at the K-12 Level: Issues and Challenges*.
- Jamani, K. J., & Figg, C. (2018). Application of Gamification to Blended Learning in Higher Education. In *Encyclopedia of Information Science and Technology, Fourth Edition*. IGI Global. doi:10.4018/978-1-5225-2255-3.ch282
- Patient, R., & Agbobli, E. (2015). University, Technology-Enhanced Pedagogical Models to Learn Critical Citizenship at a South African. In *Handbook of Research on Educational Technology Integration and Active Learning*. IGI Global. doi:10.4018/978-1-4666-8363-1.ch006

- 
- Thindwa, H. (2015). The Role of Technology in Improving Quality of Teaching in Higher Education: An International Perspective. In *Handbook of Research on Innovative Technology Integration in Higher Education*. doi:10.4018/978-1-4666-8170-5.ch003
- Zhou, M. (2015). Learning Management Technology and Preservice Teachers. In *Encyclopedia of Information Science and Technology, Third Edition*. doi:10.4018/978-1-4666-5888-2.ch247

# 11

## **Blended Learning as the Linchpin to Innovative Teaching in University**

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**About the author:**

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**ABSTRACT**

Writing is indeed one of the most demanding skills that second-language (L2) learners are expected to gain, demanding the mastery of a variety of linguistic, cognitive, and sociocultural competencies. Writing has always had a place in the second language (L2) curriculum, but in this 21<sup>st</sup> century, the ability to write in L2 may be even more vital than ever. With an innovative teaching method that is the implementation of blended learning (BL), effective teaching and meaningful learning can be fulfilled. Thus, this paper aims to describe the teaching and learning context, and how writing activities were integrated as part of the BL outcome in higher education institution in Malaysia. The implementation of BL was further explained by combining RASE (Resources, Activities, Supports, and Evaluation) BL framework and Process Approach in teaching L2 academic writing. Furthermore, this paper also puts forward some suggestions for ensuring BL works best in teaching academic writing to English as second language learners.

**Keywords:** *Blended learning, ESL learners, Academic writing*

## INTRODUCTION

Having more than twelve years of experience teaching writing to English as a second language (ESL) learners, I attest that teaching writing is undeniably challenging and demanding task. Besides, it is evident that writing is a daunting experience for many students, especially for the non-natives. A student once wrote, “I can write well- in my language, but writing in English is *too hard*.” Writing has always had a place in the second language (L2) curriculum, but in this 21<sup>st</sup> century, the ability to write in L2 may be even more vital than ever. Globalisation and technological advances such as the rise of Web 2.0 technology have made written communication across languages and cultures not only possible but essential in business, education, and also in other fields. Thus, many teachers will find themselves needing to teach writing and may not feel well prepared.

Knowing the significance of L2 writing, it is best for teachers to implement appropriate and effective methods of teaching. In other words, innovative teaching is the fulcrum to successful teaching and learning. According to Nicolaides (2012), “innovative teaching methodologies will lead to a learning society in which the creative and intellectual abilities of students will allow them to meet the goals of transformation and development.” Although there are not any specific pedagogical theories suggested by the use of any medium or technology, many studies show that both teacher instruction and student motivation improve with the use of technology in language learning.

To fulfil our demands for a more content-rich learning environment, blended learning is presumably the key instrument to *avant-garde* pedagogical strategy. Indeed, it has led to a renewed interest in the way students should be taught and assessed. In addition, the evolution of information technology billowed the growth of online educational programs which change the traditional system of education (Azizan, 2010), and the development has no sign of slowing down. Many institutions of higher education in Malaysia are converting to be a fully electronic university in future (Wahab, Othman, and Warris, 2016; Azizan, 2010). Malaysia is one of the countries that has recently started making major changes in its educational system including the role of ICT in teaching and learning: how to incorporate or embed it within learning/teaching. In 2006, the Ministry of Education (MOE) launched a book on “Blended & Flipped Learning: Case Studies in Malaysian HEIs”. The publication is a collection of blended learning (BL) and flipped learning (FL) initiatives implemented so far at several Higher Education Institutions (HEIs) in Malaysia. The decision was made to elevate international education values and uphold lifelong learning, the Government’s aspiration of better preparing Malaysians for the needs of the 21<sup>st</sup> century. Hence, the materialisation of technology provides great benefit to the higher education institutions as it can offer an alternative approach in providing a better quality of learning.

It is without a doubt that the implementation of BL in L2 academic writing especially in the Malaysian context is still in its infancy. There is a paucity of information on what exactly the key ingredient of effective teaching of L2 academic writing teaching and learning in the context of BL. Wahab, Othman, and Warris (2016) stressed that BL offers more benefits and is more effective than traditional e-learning. However, studies have shown that academicians are apprehensive about teaching in a blended learning environment (Deperlioglu & Kose, 2013). This necessitates a study in Malaysian context to provide guidance on planning and delivering an effective ESL writing curriculum with the integration of BL.



## LITERATURE REVIEW

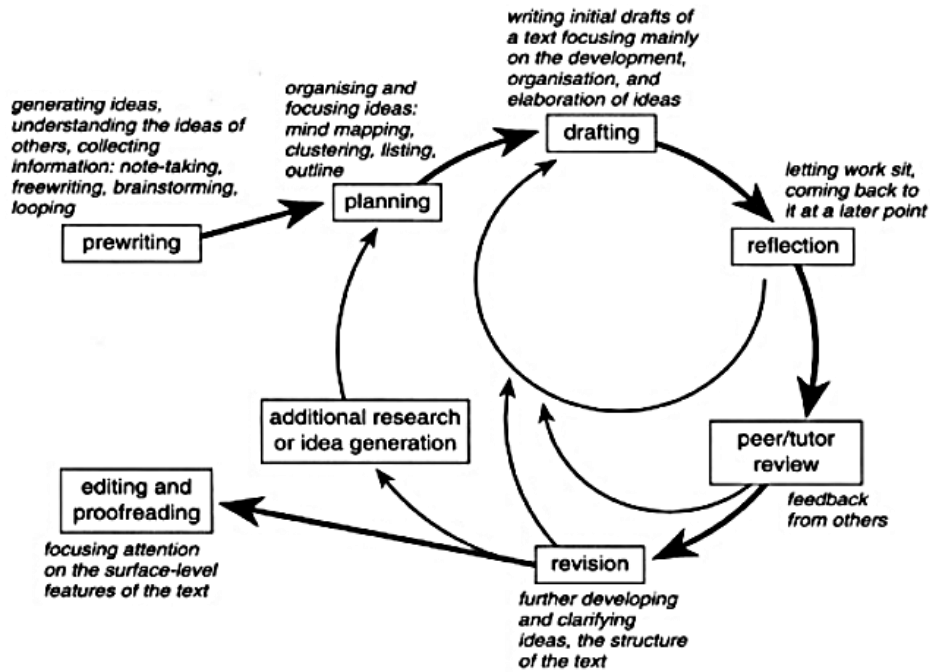
### L2 Writing in Blended Learning Environment

Writing is in fact not a linear process. It demands a process of going back and forth: planning, writing, rereading, and revising. Furthermore, Burke (2010) stated that academic writing is a product of the mind because it involves mental and cognitive activity. To compare between native and non-native writers, Silva (1993) explained that generally, both writing processes are similar, L2 writing, on the other hand, is “more constrained, more difficult, and less effective”. To rub salt into the wound, academic writing is a more painstaking process. Academic writing is more formal and has more specific vocabulary than everyday language. It is also much less common.

According to Al Badi (2015), the major challenges faced by L2 university students in writing are language, coherence, and cohesion, expressing own voice, significant topic and relevant references, and paraphrasing, referencing and citations. Ghiridharan (2012) also claimed that academic writing is considered to be a challenge to university students due to low level of lexical competence and grammatical properties. In Malaysia, academic writing is often introduced at the university. Thus, lack of experience in academic writing, as well as inadequacies of the target language, affects their L2 writing. Further, a research conducted by Olivas & Li (2006) and Ghiridharan (2012) proved that ESL students’ inability to produce good academic writing products impact their overall academic performance. As stated by Weigle (2014, p. 223), writing not only is about sentence and grammar constructions, elaboration, and organisations, but it also involves the discourse community; thus, learning to write means sharing thoughts and requires collaboration.

Certainly, teaching writing requires careful planning and strategy. Over the years, the world has seen the stunning transformation of pedagogical approaches in teaching writing, from product approach to process approach. The process approach, according to Matsuda (2003), embraces the cognitive strategies which promote the autonomous learning. This approach advocates the power of teachers’ feedback on the students’ work which allows continuous improvement on the written work. Even though there is no single and specific way to conduct the approach, the main aim of this approach is for students to produce several drafts before coming up with the finalised product.

Coffin et al (2003) proposed a framework that best described the cycle of process approach (see Figure 1). In the process, there are mainly seven steps which include: prewriting, planning, drafting, reflection, peer/tutor review, revision and editing proofreading. Here we can see the importance of feedback students’ writing process. Coffin et al (2003) further explained that providing feedback on learners’ writing is a key pedagogical practice in higher education. In fact, it is the key pedagogical practice in tertiary level. To understand the concept of feedback in writing, Weigle (2014) mentioned that there are three types of teacher feedback on writing. The first type is written comments where the endnotes and margin comments can reinforce strengths of a paper or indicate where improvement is needed. The second type is individual conferences where it provides an opportunity to clarify and negotiate meanings through discussion. The third type is recorded oral feedback which may be faster than providing written feedback and provide opportunities for listening comprehension. Thus, providing constructive and frequent feedback on students’ writing can help to improve students’ writing.



*Figure 1: Phases of the Writing Process (Coffin et al, 2003)*

The question is: how does blended learning come into the play? Digital devices are omnipotent where it is now integrated into every aspect of our lives. The use of technology is a microcosm of the evolution of teaching practices in the field itself. Weigle (2014) mentioned that recorded oral feedback promotes a positive interpretation of comments and allows the students to listen to the comments multiple times. Blended learning can assist the process; hence, integration of face-to-face and online learning can definitely assist the process of ESL writing, importantly in the feedback session. Based on a report from the American Writing Project (2010), digital technologies are helpful for teachers to teach writing. The use of technology is able to allow students to collaborate and improve their writing. The finding of the report also stated that 50% of the teachers acknowledged the benefits of technologies in improving students writing skills as well as grammar.

Looking at the advantages of implementing technology approach in ESL writing, I finally decided to incorporate online digital media in my classroom. I believe that a good teacher always experiments with new methods and applies appropriate and effective approach in lessons. Thus, I combined two frameworks (RASE and Process) to teach writing to the students. The step-by-step process and online tools used will be further discussed below.

## METHOD

The Basic Academic Writing (MPU2201) is an academic writing course; it is an elective course offered by Multimedia University Malaysia. It is a 42-hour course (per semester). The students were undergraduate students majoring in Business, Engineering and IT. English is regarded as the second language. Previously, the classes were conducted mainly on face-to-face basis that is to say lessons were only taught in class and activities were conducted during classes. Students' comprehension was assessed through assessments (formative and summative) and Q&A session during class. In the classroom, students were not active, lifeless mass, partly due to a hectic schedule and 'dry' topics. Thus, to inject energy into

the classroom, I decided to change my usual TL to be more interesting and engaging. I will explain the process involved.

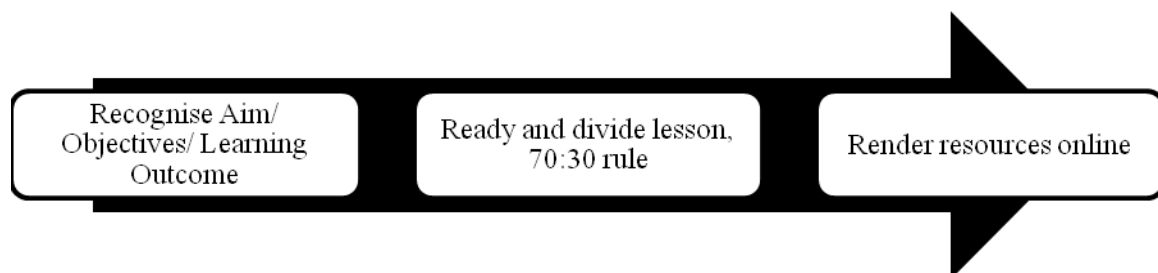
### The Blend: RASE and Process Approach

In integrating blended learning and face-to-face, I have combined process approach and RASE framework. RASE framework was introduced in 2015 by Mirriahi, Alonza, and Fox. The framework is said to support the assessment and progression of blended learning at the tertiary level. RASE is the acronym of Resources, Activities, Supports, and Evaluation (assessment). According to Mirriahi, Alonza and Fox (2015), *“the criteria and standards in the proposed framework are organised around the RASE learning design model that supports a student-centred, technology-rich environment suitable for BL.”*

The Activities in RASE is the central or core of the framework. In Activities, students are able to work on and to acquire various skills and proficiencies based on the learning outcomes stated in Resource. The Supports assists students by providing feedback and support needed. Evaluation enables teachers to observe their students’ progress and performance. As stated by Churchill et al (2013), *“assessment stage can offer a traffic light signal to teachers, identifying students in need of further tutorial support.”* Thus, there are four-man stages of RASE model.

### Implementing the R for Resources

There were three steps involved in the Resources stage. First, the course aims and objectives, as well as learning outcomes, were used as the skeleton of the programme. The main objective of the course is to develop students’ knowledge of the principles and skills of academic writing and to equip students with the fundamental knowledge and skills in academic writing. Second, based on the objectives of the programme and learning outcome, activities were set and laid out in the lesson plan. The lesson plan was carefully organised and divided into face-to-face (70%) and online activities (30%) based on the number of contact hours of the programme.



*Figure 2: The 3R*

Third, guidelines such as the lesson plan as well as the references were made online and visible for the students. This was to ensure that the students were aware of what (aim and objectives), how (the requirement and assessment) and when (activities and assessment to be carried out) of the programme. The platform that was used to share the information was Multimedia Learning System (MMLS), a type of Learning Management System (LMS). This platform was chosen because all students had the access to MMLS. The content of the programmes was made available approximately a week before the semester began. It is wise to

choose a platform that is accessible for students as well as teachers. The platform must also be versatile which it can be assessed at anywhere and anytime.

## Implementing the A for Activities

Note that all activities carried out support each other as to promote continuous learning. Each activity was carefully planned so that it met the purpose and objectives of the course. Since the focus of the course is to improve the students' academic writing skills, the process approach to academic writing was employed. Each phase took circa 2 weeks, and at least one hour of online learning was conducted each week. For example, in the prewriting phase, students were first introduced to the essence of an academic essay such as sentence structure, organisation, and language (see Table 1). To implement the blended learning method of teaching writing, students were presented to several online tools which helped in promoting a better learning experience. Some of the tools that were used are Padlet and Google Docs (see Figure 3).

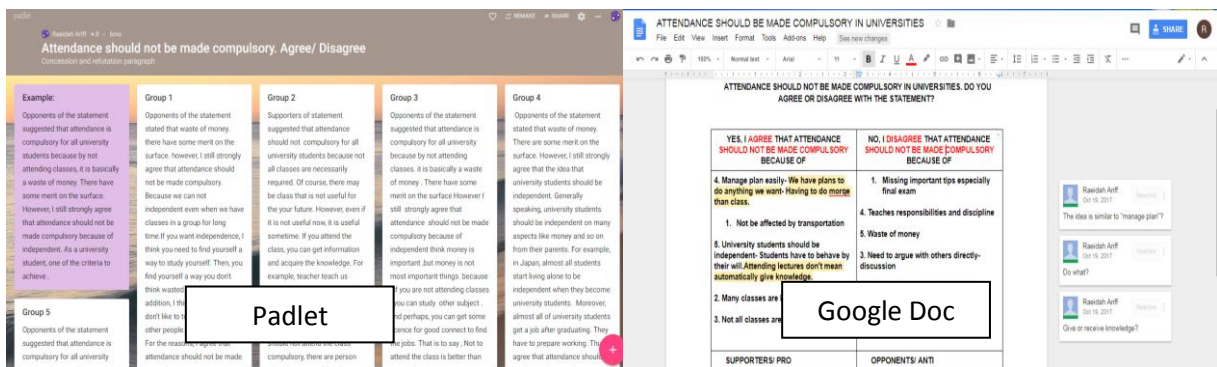


Figure 3: Padlet and Google Doc for writing practice

In addition, students were assigned to create a blog where each week where they had to post a blog. The blog was a type of reflective learning diaries. The entries were visible to all classmates as well as the teacher. Table 1 below shows the list of the activities in this framework.

*Table 1: The RASE in Process Writing and the BL tools used*

Phase	Aim	Teaching and Learning Activities (Blended Learning)	
		Face-to-Face	Online Learning
<b>Prewriting</b>	To provide motivation, content, fluency and language practice	Structured language practice in class (types of sentences)	Teacher uses online tools for writing practices such as constructing types of sentences.
			<b>Online tool:</b> Padlet
<b>Planning</b>	To focus on organising and getting ideas	Finding articles/ reading materials to support ideas and presenting the ideas in class; discuss answers/ opinions based on questions posted previously on MMLS	Students watched video online and answered questions posted on MMLS
			<b>Online tool:</b> LMS platform and YouTube
<b>Drafting</b>	To write the first draft and elaborate ideas	Understanding the concept of topic sentences, thesis statement and supporting details	Teacher and students have an online forum discussion.
			<b>Online tool:</b> Padlet
<b>Reflection</b>	To read and proofread the first draft	Conducting structured language practice in class (verb tense consistency and transitions)	Students post the first draft to get comments/ feedback from their peers and teacher
			<b>Online tool:</b> Google Doc
<b>Peer/ Tutor Review</b>	To get feedback from peers and teacher	Discussing feedback gathered from peers	Teacher records the feedback using screencast and students listen and watch the recorded feedback
			<b>Online tool:</b> Screencast and YouTube
<b>Revision</b>	To further develop ideas and structure of the text	Having a face-to-face consultation with teacher to get better ideas	Students listen and watch the recorded feedback and provide their comments based on the recording
			<b>Online tool:</b> Screencast and YouTube
<b>Editing and proofreading</b>	Focusing on the surface-level features of the text	Ensuring that the final draft met the technical requirements and checking for any typos	Students post their final product
			<b>Online tool:</b> Google Doc

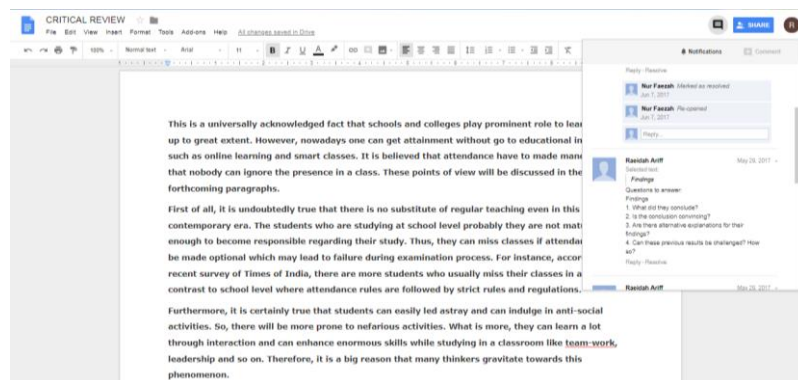
Create one blog entry per week

## Implementing the S for Supports

Mirriahi, Alonza, and Fox (2015) explained that Support is needed to ensure that the teaching and learning are engaging and meaningful. Three key factors of Supports are to support students' digital skills, to offer interaction, and to provide feedback. As mentioned previously, providing feedback on learners' writing is a key pedagogical practice in higher education. Thus, the Support stage is the vital step to ensure that the teaching and learning process.

In the drafting phase, I gave a lecture on how to organise their writing that is the structure of an essay. This included the construction of thesis statement, topic sentences and supporting details to support the students' argument. To support the face-to-face session, students were also given the opportunity to have an online forum discussion with the teacher for further clarification in writing the first draft.

The next phase is reflection where students, in this stage, students were required to submit the first draft online (*see* Figure 4) and to make the first draft visible for the peers and teacher. The main reason for posting the first draft online was to get feedback and comments from their peers and the teacher. Also, students were able to learn from each other in terms of techniques and way of elaborating ideas. The combination of peers and teacher comments on the first draft contributed to constructive feedback. Furthermore, in the face-to-face session, I could further assist the students to better refine the writing mechanics.



**Figure 4:** Online draft using Google Doc

The most critical part of this stage was the peer/ tutor review. This phase could determine whether the students' first draft needed to be edited that is whether they were needed to have the second draft: minor or major errors. Minor errors only required minimal editings such as punctuation and language structure (verb consistency and lexical structure) whereas major errors would require students to add more concise ideas and on-point argument. Furthermore, in this phase, I recorded the feedback so students could understand the comments as well as the opportunity to repeat the comments given. This type of feedback did require extra work but the outcome could potentially help the students greatly. Based on the recording made by the teacher, students were to listen to the recording (*see* Figure 5) and make appropriate changes if needed. Using the method, students were able to access and repeat the comments at their own time and pace. This supports the notion of blended learning itself. Finally, the last phase was editing and proofreading. In this phase, students were to ensure that the final draft was error-free in terms of spelling and typos.

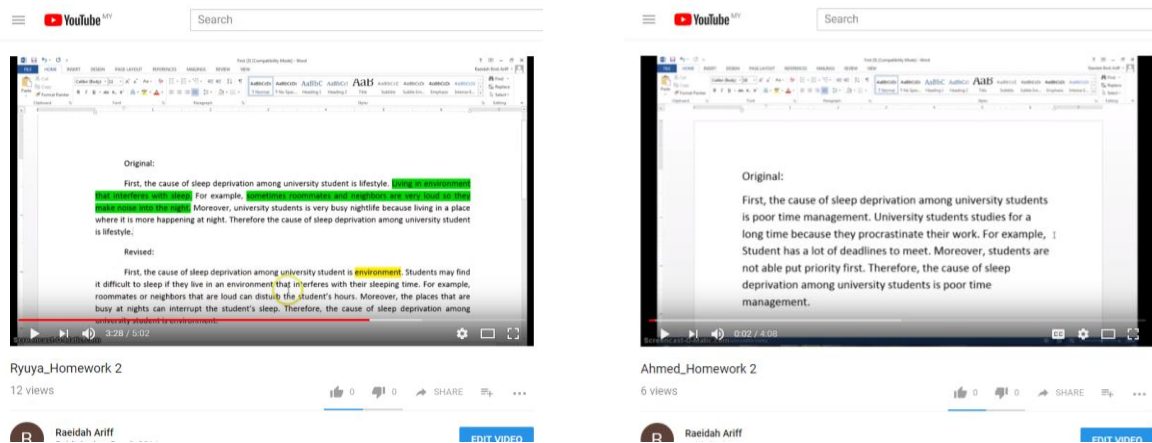


Figure 5: Tutor review using Screencast and YouTube

## Implementing the E for Evaluation (Assessment)

Not only assessment helps students to learn but also it helps me to monitor the students' progress in the learning process and to reflect on their teaching methods. Thus, it is important to ensure that the assessment is able to meet its goal. According to Mirriahi, Alonzaand Fox (2015), an effective assessment is able to "access to their progress and achievement enables them to monitor their learning development over time, which consequently enhances their self-regulation." For instance, progress bars and grade books (*see* Figure 6) in online learning environments can help students monitor the number of activities or assessments they have completed, and their scores along the way. One of the ways to improve learning is the use of self and peer assessment. Incorporating peer assessment in BL course design should support develop students' skills such as critical reflection, listening to and acting on feedback, sensitively assessing and providing feedback on the works of others and gauge their achievement of the intended learning outcomes prior to submitting their work. In the case of peer assessment, such rubrics can provide an objective way for peers to offer feedback that is focused on criteria and standards.

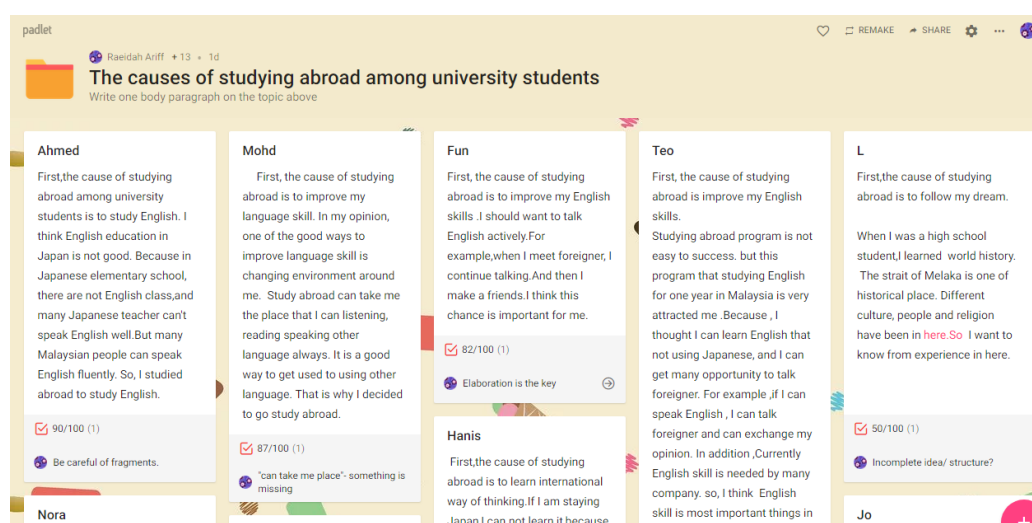


Figure 6: Grading and feedback using Padlet

## DISCUSSION

### Students' Overall Opinions of the BL Approach

Overall, students' attitude towards the implementation of BL is positive: greater confidence, less stressful and better understanding. The responses were gathered based on the comments provided by the students in the Academic Evaluation System (AES).

Students responded well with the pedagogical approach used to teach academic writing. For example, students stated that:

*S1: I gained confidence in writing an essay.*

*S2: Before I was afraid to let my friends see my work, but now I appreciate their comments and I can improve from the comments.*

*S3: Writing is not scary anymore. I know how to tackle that issue.*

Furthermore, students also responded that the use of BL in teaching academic essay is less stressful. One of the students mentioned that:

*S4: I love the recording. Easy for me to trace my mistakes and I don't have to see the lecturer again and again.*

S7's response supports Hummer's (2006) study where he mentioned that introverts are in indeed of the opinion that using BL in the classroom can promote collaborative learning as well as better discussion.

*S7: I feel shy to talk to the teacher and my classmates. But, in an online forum, I feel more comfortable.*

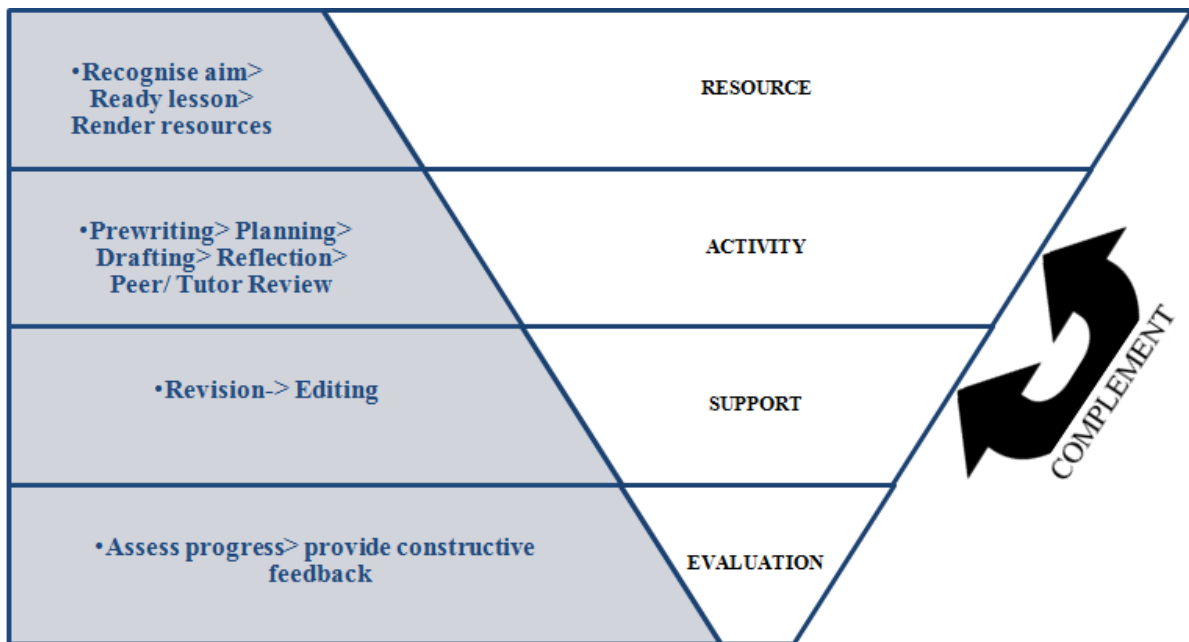
The implementation of BL in the classroom has certainly helped students to comprehend the lesson well. Each face-to-face and BL activity was designed to support and consolidate each other. Using this method, continuous learning is made possible.

### Teacher's Overall Opinions of the BL Approach

BL can certainly help teachers to make their lesson become more interesting. This promotes positive engagement between teachers and students. For example, blogging activity makes students become more conscientious of the quality of their learning. Students are no longer working for a teacher who checks and evaluates work but a potential audience.

Furthermore, integrating technologies with traditional teaching and learning facilitates the engagement of the students in the learning process. Students become more interested in learning and do not feel that it is just a mundane task assigned by the teacher. BL can also promote a positive learning environment where the teacher and students collaborate in creating the final product. Students were able to learn from each other and assist one another.





*Figure 7: RP approach to ESL writing*

Based on the positive feedback and the effectiveness of the methods used in the classroom, I am able to create a framework for teaching ESL writing (*see* Figure 7). The main structure of the framework is RASE. RASE is used as the four main steps in blending writing. Each main step incorporates online tools in its purpose/ lesson. Note that there is no specific online tool required in conducting the lessons. Online tools used in the lessons (Google Doc and Padlet) are some of the applications that are available online. There are numerous apps online that some may find more interesting and doable. Based on the framework, the most crucial steps that ensure the success of BL in writing are Activity and Support. These steps complement each other where teacher-students teamwork is needed. The teacher should consistently provide support in both virtual and physical environment. Furthermore, teachers are also to promote regular and on-going formative evaluation; hence, it can be seen as a paradigm shift in the teaching and learning of English.

## CONCLUSION

The primary goal of blended learning is to combine the interactivity of instructor-led training, the flexibility of self-paced learning, and online tools for building a learning community. From the proposed frameworks reviewed, to design an effective blended learning framework or model, I believe below are the following elements or ingredients of successful blended learning strategies to be taken into considerations:

1. Use e-tools that can assist in giving constructive feedback. Tools such as screencast or any audio and/or video can ease the feedback process (no repetition) because the comments are accessible to the students (self-paced).
2. Choose a platform that is accessible and user-friendly. A complicated app might frustrate the students as well as the teachers.
3. Monitor students' progress in and outside of class. Teachers should provide guidance to students, especially in the 'virtual' world so that students know that their effort is worthwhile.
4. Set activities (face-to-face and online learning) that facilitate continuous and collaborative learning. In doing so, better engagement and better comprehension can be achieved.
5. Show students that the assigned work are to facilitate the learning process and not as an act of punishment. In any activity set by teachers, it must tally and tailor to the learning outcome, or we might overwork the students.

Blended learning is indeed a move to re-align the appraisal of students with an integrated learning experience. It is certainly a bold step forward in the right direction that gears education to the needs of the 21<sup>st</sup> century. What is required now is a constant and close monitoring process in order to ensure that well-laid plans do not go awry.

## ACKNOWLEDGEMENT

I would like to thank my students who gave me the opportunity to explore more and adapt to change better.

## REFERENCES

- Adas, D., & Bakir, A. (2013). Writing difficulties and new solutions: Blended learning as an approach to improve writing abilities. *International Journal of Humanities and Social Science*, 3(9), 254-266.
- Azizan, F. Z. (2010). Blended learning in higher education institution in Malaysia. In *Proceedings of Regional Conference on Knowledge Integration in ICT* (Vol. 2010, pp. 454-466).
- Camahalan, F. M. G., & Ruley, A. G. (2014). Blended learning and teaching writing: A teacher action research project. *Journal of Instructional Pedagogies*, 15, 1.

- Deperlioglu, O., & Kose, U. (2013). The effectiveness and experiences of blended learning approaches to computer programming education. *Computer Applications in Engineering Education*, 21(2), 328-342.
- Gallagher, A. B. (2013). Issues Affecting Second Language (L2) Learning Students of Academic Writing. *名古屋外国語大学外国語学部紀要*, (44), 277-297.
- Giridharan, B., & Robson, A. (2011). Identifying gaps in academic writing of ESL students. In *Enhancing Learning: Teaching and learning conference 2011 proceedings*. Enhancing Learning: Teaching and Learning Conference 2011, Curtin University Sarawak.
- Hummel, H. G. (2006). Feedback model to support designers of blended learning courses. *The International Review of Research in Open and Distributed Learning*, 7(3).
- Lam, Y. W., Hew, K. F., & Chiu, K. F. (2017). Improving argumentative writing: Effects of a blended learning approach and gamification. *Language learning & technology*, 22(1), 97–118. <https://dx.doi.org/10125/44583>.
- Mozaheb, M. A., Seifoori, Z., & Beigi, A. B. (2013). Effective Iranian EFL writing teachers (a technology-based framework). *Procedia-Social and Behavioral Sciences*, 70, 18-27.
- Tomlinson, B., & Whittaker, C. (2013). *Blended Learning in English Language Teaching*. London: British Council.
- Voorn, R. J., & Kommers, P. A. (2013). Social media and higher education: introversion and collaborative learning from the student's perspective. *International journal of social media and interactive learning environments*, 1(1), 59-73.
- Wahab, N. A., Othman, J., & Warris, S. N. (2016). Blended learning in higher education: An overview. *E-Academia Journal UiTMT*, 5(2).
- Wei, M. (2017). *Strategies for First-Year University ESL Students to Improve Essay Writing Skills*.

## ADEPT ELITE WORKSHOPS



# Appendix

**ADEPT ELITE Workshop Series**  
**The Training Calendar & Trainers**  
*(<http://adept.mmu.edu.my/elite2018/>)*

## THE GSUITE SERIES

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

Introduction to G-Suite (Formerly known as GAFE)

Heard about the benefits of using GAFE or G-Suite in class? **Curious to know how to get started?** Here's your chance to get to know all the apps available in G-Suite for Education and how you can use these apps as part of your blended learning strategy.

Google Apps for Education  
is now G Suite for Education

**Dr. Khazaimatol Shima**

**Ms. Nordiana**

**Ms. Fathiha**

**Ms. Raeldah**

Training Dates  
(Cyberjaya)

**[DONE]** 2018 | 25 June 2018 | 5 Nov 2018

Training Dates  
(Malacca)

**[DONE]** 2018 | 25 June 2018 | 5 Nov 2018

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

Office of Academic Development for Excellence in Programmes and Teaching(ADEPT)

Life Made Easier™ | TTM Group

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

Blended Learning with Google Apps  
(G-Suite for Education Level 1)

In this training, you will learn to master the **Google Drive** apps that are available as part of G-Suite for Education (formerly known as GAFE). The main purpose of this training is to familiarise users with **Google Drive** apps and how to apply these apps into your class blended learning strategies.

**Dr. Jimmy**

**Ms. Ng Mindy**

**Ms. Thong Li Wah**

**Ms. Fathiha**

**Ms. Syarifah Dyanah**

**Dr. Leow Meng Chew**

Training Dates  
(Cyberjaya)

**[DONE]** 2018 | 28 June 2018 | 12 Oct 2018

Training Dates  
(Malacca)

**[DONE]** 2018 | 28 June 2018 | 11 Oct 2018

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

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**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

Connecting and Engaging with Google Classroom  
(Google Apps for Education Level 2)

In this workshop, you will be introduced to the use of **Google Classroom** as an interactive teaching and learning platform. **Google Classroom** offers various engaging teaching and learning tools which can be used as part of your blended learning strategies to encourage students to participate in your blended learning activities.

Trainers:

**Dr. Ian Chal**

**Dr. Jimmy**

**Dr. Leow Meng Chew**

**Dr. Gan Chin Lay**

Training Dates  
(Cyberjaya)

**[DONE]** 2018 | 8 Aug 2018 | 16 Nov 2018

Training Dates  
(Malacca)

9 May 2018 | 10 Aug 2018 | 21 Dec 2018

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

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## The WOW Series

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### How to WOW Your Blended Learning

**Trainers**

Add the WOW factor to your Blended Learning strategies! This workshop guides you step by step in creating and designing course content using Web 2.0 tools.

Register for this workshop to learn how to make a difference in class!

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

Training Dates (Cyberjaya)	Training Dates (Melaka)
22 March 2018   18 Dec 2018	29 <del>FULL!</del> March 2018   18 Dec 2018

Office of Academic Development for Excellence in Programmes and Teaching (ADEPT)

Life Made Easier™ TMI Group

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### How to WOW Your Classroom Engagement and Assessment

**Trainers**

Learn to create fun interactive activities in your classrooms by utilising Web 2.0 tools to promote student-lecturer interactions and increase students' engagement.

Register for this workshop to learn how to make a difference in class!

Training Dates (Cyberjaya)	Training Dates (Melaka)
21 <del>FULL!</del> March 2018   26 July 2018	23 <del>FULL!</del> March 2018   13 July 2018

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

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## The e-Learning Series

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### A Beginner's Guide to e-Learning Technology (e-Learning Level 1)

**Want to learn to integrate e-learning technology in blended learning courses?**

This workshop delivers basic concepts and information on the resources involved in e-learning development and allows participants to explore the possibility of incorporating e-learning in their subjects. Various methodology in designing e-learning will be shared and discussed during the workshop.

**Trainers:**

Register for this workshop to learn how to make a difference in class!

Training Dates (Cyberjaya)	Training Dates (Malacca)
25 April 2018   16 August 2018	19 <del>FULL!</del> April 2018   19 Sept 2018

Register for the workshop here: <http://adept.mmu.edu.my/ell1s2018/>

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**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### Exploring and Designing Open-Source Learning (E-Learning Level 2)

This workshop is designed to provide hands-on training on designing an online course using tools within the Open Learning platform. Courses can be designed to be used within the university for blended learning or as a MOOC for e-learning purposes.

**openlearning**

**Trainers:**

Register for this workshop to learn how to make a difference in class!

Training Dates (Cyberjaya)	Training Dates (Malacca)
26 April 2018   19 September 2018	19 <del>FULL!</del> April 2018   20 September 2018

Register for the workshop here: <http://adept.mmu.edu.my/ell2s2018/>

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## The Pedagogy Series



**ADEPT ELITE WORKSHOP SERIES PRESENTS:**

### Instructional Design (Gagne's 9 Events)

**Gagne's Nine Events of Instruction** is a systematic approach that helps educators build a framework or structure on the preparation and delivery of instructional content. The nine events of instruction can be modified to fit both the content to be presented and the knowledge level of your audience. This workshop will guide you in applying **Gagne's Nine Events of Instruction** to plan and structure your blended learning classes in a way that is able to capture student's attention and engage them in their learning.

#### Trainers






**Register for this workshop to learn how to make a difference in class!**


<b>Training Dates (Cyberjaya)</b> 1 Mar 2018   4 May 2018   12 Oct 2018 <span style="color: red; font-weight: bold;">[ DONE ]</span>	<b>Training Dates (Melaka)</b> 1 Mar 2018   11 Jun 2018   31 Oct 2018 <span style="color: red; font-weight: bold;">[ DONE ] [ FULL ]</span>
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Register for the workshop here: <http://adeplmmu.edu.my/elite2018/>

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## The Platform Series



**ADEPT ELITE WORKSHOP SERIES PRESENTS:**



### CaMSys for Academics

**Want to know how to use CaMSys to its fullest potential?**

This workshop is designed to provide hands-on training for academics on identifying and using various tools within the CAMSYS platform for academic purposes.

At the end of this workshop, the participants should be able to identify and use the various tools in CAMSYS system, setup the course components in the system, and generate reports through CAMSYS system.

**Trainers:**  
Dr. Khazaimatol Shima & Ms. Thong Li Wah


**This workshop is compulsory for new joiners!**

<b>Training Dates (Cyberjaya)</b> 18 July 2018   10 Oct 2018	<b>Training Dates (Melaka)</b> 17 July 2018   9 Oct 2018
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Register for the workshop here: <http://adeplmmu.edu.my/elite2018/>

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**ADEPT ELITE WORKSHOP SERIES PRESENTS:**

### MMLS Workshop

**Want to know how to use MMLS to its fullest potential?**

This workshop is meant to provide hands-on training for academic staff on how to use MMLS for teaching and learning.

MMLS is constantly being upgraded and improved with new features, so join now to discover its full potential and how it can help support blended learning.

**Trainer:**  
Ms. Siti Hazwani & team



**This workshop is compulsory for new joiners!**

<b>Training Dates (Cyberjaya)</b> 22 March 2018   8 Nov 2018	<b>Training Dates (Melaka)</b> 21 Full 2018   9 Nov 2018 <span style="color: red; font-weight: bold;">[ FULL ]</span>
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Register for the workshop here: <http://adeplmmu.edu.my/elite2018/>

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## The Content Creation Series

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### Content Creation Series (Planning your video lecture content)

**Trainers**



**Want to create video lectures but don't know where to begin?**

This workshop will help guide you on the steps you can take to plan the production of your video based lectures. The workshop will cover the basics of **when and why you use videos in your class**, what formats are appropriate, and how to create a content storyboard.



Register for this workshop to learn how to plan your video lecture content!

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

Training Dates (Cyberjaya)	Training Dates (Melaka)
19 <del>DONE!</del> 2018   11 May 2018	20 <del>DONE!</del> 2018   10 May 2018

Office of Academic Development for Excellence in Programmes and Teaching (ADEPT)  
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**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### Content Creation Series (Mix & Wix)

**Trainers:**



**Dr. Low Jing Hong**



**Mr. Shahfeeq Jilbin**

Wix and Mix are two different apps that having the same purpose that able to create the e-learning content. Office Mix is a free extension to PowerPoint that makes it easy to turn your PowerPoint presentations into interactive e-learning and share them with others. Office Mix is able to cooperate with the elements of Audio, video, real-time digital inking, screen recording and interactive apps and form an e-learning content medium.

Wix is a cloud-based web development platform. It allows users to create HTML5 websites and mobile sites through the use of online drag and drop tools. Users may add functionality such as social plugins, contact forms, and community forums to their web sites using a variety of




Training Dates (Cyberjaya): 3 April 2018 | 3 July 2018

Training Dates (Malacca): 4 April 2018 | 4 July 2018

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

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## The Communication Series

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### Enhancing Communication Skills For Blended Learning Classes

**“Do you want to acquire some techniques and skills to communicate with your students in class and online, especially when conducting your blended classes? And learn some tips to speak and sound confident while facilitating class discussions?”**

In today's blended learning classrooms, lecturers are required to be facilitators and to engage their students using effective communication skills. Often lecturers lack the confidence to drive discussions and are unable to encourage student participation. Effective body language, questioning strategies, and verbal skills are three powerful communication skills that are able to help create engaging, interactive and enjoyable blended classes for the students.

**Trainers**



**Ms. Maria Valentine**



**Ms. Irma Suhalla**



**Ms. Raaidah**

Training Dates (Cyberjaya): 26 ~~DONE!~~ 2018 | 11 May 2018 | 17 Aug 2018

Training Dates (Melaka): 6 ~~DONE!~~ 2018 | 22 June 2018 | 11 Oct 2018

Register for the workshop here: <http://adept.mmu.edu.my/elite2018/>

Office of Academic Development for Excellence in Programmes and Teaching(ADEPT)  
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## The GRA Workshop

**MMU**  
MULTIMEDIA UNIVERSITY

ADEPT ELITE WORKSHOP SERIES PRESENTS:

### Pedagogy & Teaching for GRAs (MMU GRAs only)

This workshop is meant to address issues faced by MMU GRAs who may not have any background in teaching. The purpose of the training is to expose GRAs to the importance of teaching skills and to equip the GRAs with the necessary knowledge/skills required to teach their tutorial/lab classes.

After this training, GRAs should be able to conduct more engaging classes and know how to better interact with the students.

**Trainers**



**Dr. Shyamini a/p Gopinathan (FOU)**



**Ms. Heidi Tan (Deputy Director, ADEPT)**



**Ms. Maria Valentine Rao (FAC)**



**Ms. Nur Faezah Jayiddin (CDP)**



**Ms. Syarifah Dyanah (CDP)**

**This workshop is compulsory for all MMU GRAs!**

Training Date (Melaka): 30 March 2018

Register for the workshop here: <http://gg.og9505q>

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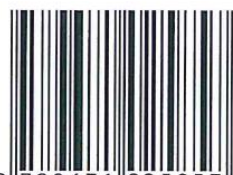
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