UNIVERSITI TEKNOLOGI MARA
Cawangan Negeri Sembilan

COMPILATION OF TEACHING & LEARNING INNOVATIONS

2022

"Turning challenges into opportunities in classroom innovations"

THE ACADEMIC AFFAIRS DIVISION
UITM NEGERI SEMBILAN

COMPILATION OF TEACHING & LEARNING INNOVATIONS 2022
TURNING CHALLENGES INTO OPPORTUNITIES IN CLASSROOM INNOVATIONS

Chief Editor:
Tuan Sarifah aini Syed Ahmad (PhD)

Published on:
31 October 2022

Published by “
Academic Affairs Division
Universiti Teknologi MARA (UiTM)
Cawangan Negeri Sembilan
Kampus Kuala Pilah
Pekan Parit Tinggi
72000 Kuala Pilah
Negeri Sembilan
Malaysia

.
Perpustakaan Negara Malaysia

e ISBN 978-967-14569-8-9

EDITORS

PREFACE

Innovations in teaching and learning or known as classroom innovations are created based on the challenges encountered by instructors and students in the classroom. They are essential in education to enhance the teaching and learning process. In the context of teaching and learning, to innovate means to make changes or do something in the teaching and learning process by applying new approaches or creating new tools to enhance learning.

When the COVID-19 pandemic struck at the end of 2019, there were many challenges encountered by instructors and students in teaching and learning. The pandemic has certainly changed the education landscape throughout the world. As for Universiti Teknologi MARA (UiTM), classroom instruction was shifted abruptly from face-to-face and blended learning (a combination of face-to-face and online learning) to online distance learning (ODL). ODL was introduced when the first lockdown in Malaysia was imposed in March 2020. ODL provides flexible educational opportunities where education can be accessed and acquired through various ways.

Most lecturers in UiTM Negeri Sembilan applied online learning during the pandemic via various learning management systems such as UFuture, Google Classroom and Microsoft Teams, and social media such as WhatsApp and Telegram. Therefore, with the support from the Deputy Director of Academic Affairs Division, Ts Dr Noorlis Ahmad, the Task Force HEA takes the initiative to compile the classroom innovations invented by instructors in UiTM Negeri Sembilan for the teaching and learning of courses during the COVID-19 pandemic. The innovations were applied in the classroom during the pandemic in 2020 to 2022. It is hoped that this compilation may help to stimulate new ideas for creating new classroom innovations in the future.

Chief Editor
Tuan Sarifah Aini Syed Ahmad (PhD)
Task Force HEA
UiTM Cawangan Negeri Sembilan

TABLE OF CONTENT

MiPlato Flashcard	1
Padlet Virtual Bulletin Board: An Enhancement Tool for C++ Programming Courses	5
Digital Games: Interactive Applications for Students' Learning in a Classroom	10
Local Government Concept Mapping – Students' Learning Tool	16
Introduction to Statistics E-Content for Self-Learning	21
A Pocket Book for Environmental Quality Index	26
Addressing Communication Issues Through Interactive Digital Advocacy Actions	31
The Fun of Learning: OV Game as a Teaching Tool	35
The Used of an Animated Timeline Infographic in Accounting Subject for Non-Accounting Students	40
Management of Text Conversations on Telegram during the COVID-19 Pandemic	49
Ecocraft Game : True Experience in Learning Economics	55
An Interactive Game Application: Economics Brilliant	59
'StudySmart' – A Student's Planner Application	63
Overcoming Challenges in Teaching Programming in a Virtual Environment	68
Double Entry Principles & T-accounts	74
Easy Step	79
POS-UP : Learning Parts of Speech Using Poems	84
Incorporating Powtoon as a Learning Activity into an Economics Course	90
Classpoint: Bridging Online Class Communication	94
Step-by-Step Guide and Practice for SQL Accounting Software	99
Group Project Monitoring System Based on Centralized Google Sheet Application for Data Mining Subject	105
Online Revision using Telegram Poll	110
Development of Lewis Structure Online Games as an Alternative Learning Tool for Teaching and Learning Process	115

It's No Longer a Lonely Journey: *Virtual Summit Sekolah Penulisan Tesis* (VSSPT 1.0) as Social Support for Postgraduate Students 120

Designing Google Site as a Learning Platform for Statistics Course 126

Making Grammar Practices Interactive through Quizizz 131

Student-Centred Learning Online Classroom Activity For a Workplace Communication Course 135

Students' Experience Using Google Site: UiTMNS Internship Course (UTIC) 140

Telegram Group Video Chat: A tool for Online Distance Learning Activities 146

Note-in-Poster Framework for Developing Engaging Learning Contents 151

Monoslad: A Board Game to Enhance Grammar And Vocabulary 156

Edupreneur Centre: A Web-Based Learning for Entrepreneurship Education 162

Exploring the Potential of Using Scratch to Develop Games for Quality Preschool Online Education 167

FunTaskSticks 172

Application of Kahoot! to Gamify Interactive Malaysian Halal Law Studies 176

Radio Rookie Contest 2021 179

1
MiPlato Flashcard

[1] Sharifah Maimunah Syed Mud Puad, [2] Muhammad Wafi A.Rahman, [3] Mohamad Firdaus Ahmad, [4] Siti Aida Lamat, [5] Nur Dalilah Dahlan

Fakulti Sains Sukan dan Rekreasi
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] shari0971@uitm.edu.my, [2] wafiarahman@uitm.edu.my. [3] firdaus466@uitm.edu.my
[4] sitiaida@uitm.edu.my. [5] dalilahdahlan90@uitm.edu.my

ABSTRACT

Nutrition education emphasizes on healthy eating and a balanced diet. Eating habits are the key determinant of healthy diet and energy balance. Food calorie intake and physical activity are two factors that affect energy balance. The main problem with energy balance is calorie counting for food intake. How many calories do we eat and burn daily? This study concerned improving and optimizing nutrition education using MiPlato flashcards as an interactive learning method. MiPlato flashcards are able to educate individuals on food calories intake and calories burned during physical activity. Students from the Faculty of Sports Science UiTM (N=30; M age= 19.8 yr., SD= 1.5) participated in this study. Participants were required to play an interactive game involving MiPlato flashcards. This game requires participants to place food cards from the same nutrient group with minimal calorie content. Physical activity cards with calories expenditure are superior than any other cards. The first player able to get rid of his/her last card wins the game. Calories counting assessments were conducted prior to and after completion of MiPlato flashcards games. Participants showed significant improvement ($p < .05$) in calorie counting for different types of food and physical activity. Interactive game with MiPlato flashcards able to optimize nutrition education by enhancing calorie counting knowledge.

Keywords: Flashcards, Nutrition, Calorie, Physical activity

INTRODUCTION

Weight problems are a growing health crisis in Malaysia. According to World Health Organization (WHO, 2019), Malaysia has the highest rate of obesity and overweight among Asian countries with 64% of male and 65% of female population being obese or overweight. Poor eating habits among Malaysians, involving high caloric intake, consumption of energy-dense food and lack of physical activity contribute to this epidemic issue. This concern requires effective strategies to promote a healthy dietary habit that is able to reduce risk factors for chronic diseases.

Nutrition education is one intervention strategy to promote healthy eating behavior by providing nutrition-related information (Adams et al., 2015). It is speculated that information which increases knowledge and personal awareness will be productive in inciting behavioral changes (Manios et al., 1999). Major components of nutrition education are healthy eating and balanced diet. Eating a balanced healthy diet should provide individuals with the right amount of calories with all required nutrients to maintain energy balance. A positive energy balance, in which the energy intake exceeds expenditure causes weight gain (Manios et al., 1999). The main problem with energy balance is calorie

counting for food intake (Manios et al., 1999). Most individuals are unaware of the calorie intake of each meal they consume.

Information on dietary calorie is an important knowledge in improving nutrition education. It is proposed that interactive learning strengthens the learning process specifically in nutrition education (Bobroff et al., 2003). Flashcard is one of the interactive methods that promote active learning (Chien, 2015). Engagement in this activity benefits individual understanding by providing a hands-on approach that incorporates verbal, visual and auditory stimuli that enhance the learning process. Flashcard also provides a supportive learning tool that optimizes self-regulated study (Bryson, 2012). In the context of nutrition education, a number of studies have used flashcards as a medium of knowledge dissemination (Bryson, 2012; Mendoza 2007, Hawthrone 2001). However, investigation on the flashcard usage in calorie-related information is so far unknown. Therefore, the objectives of this study are to:

a. Introduce the usage of MiPlato flashcards as a nutrition learning tool.
b. Provide activities that supplement class learning.

MiPlato flashcard is a game-based learning that is able to educate individuals on calorie counting. MiPlato flashcards require the participants to place food cards from the same nutrient group with minimal calorie content. Physical activity cards with calories expenditure are superior to any other cards. As the result of this game, individuals are able to learn about food groups, food calories intake, calories expenditure during physical activity and calorie counting. This study concerned improving and optimizing nutrition education using MiPlato flashcards as an interactive learning method that are able to support conventional lecture-based teaching methods.

A STUDY ON THE EFFECTIVENESS OF THE PRODUCT

Participants

Students from the Faculty of Sports Science UiTM (N=30; M age= 19.8 yr., SD= 1.5) participated in this study. The sampling technique used in this study is purposive sampling. The inclusion criteria were as follows: (a) Diploma students and (b) attend the same nutritional class.

Research Design and Procedure

This study used experimental design where participants were required to play an interactive game involving MiPlato flashcards. All intervention sessions were carried out at approximately the same time of the day. Online assessments on calorie counting were conducted pre-and-post of the intervention session.

Materials

MiPlato flashcard is a game that requires participants to place food cards from the same nutrient group with minimal calorie content. This flashcard consists of different nutrient groups with specific color. There will be foods' calorie-related information for each of the cards.

Rules and Regulation for MiPlato Nutritional Games

First, the cards need to be shuffled by the dealer. Each player is dealt with seven cards. The remaining cards are placed face down to form a draw pile. To start the game, turn over the top card of the draw pile. Player needs to place a card that has the same color (same food group) or card with lower calorie

content than the top card. Physical activity cards with calories expenditure are superior and able to surpass any other cards. Players who do not have any card that match, or special cards must pick a card from the draw pile until a matching card is found. The first player that is able to get rid of his/her card wins the game.

Statistical Analysis

All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS). A paired sample t-test was used to analyze the data, the level of statistical significance was set at $p < 0.05$, and the results were reported as means ± standard deviations.

Results and Discussion

MiPlato flashcards game has found to improves the calorie counting assessment score from pre-to-post test. The outcome of this study presented in the Table 1.

Table 1
Effect of MiPlato Flashcard on Calorie Counting

	Pre-intervention	Post-intervention	Mean difference	t-value	p-value
Calorie-counting assessment	25.39 ± 3.4	29.32 ± 4.2	-3.93	-2.23	.031

The results of the assessment score from the pretest and posttest showed that the MiPlato flashcard game induced beneficial effects on calorie counting knowledge (p=.031). It proved that this nutritional flashcard game is an effective interactive learning method that is suitable for factual information such as food calories. In a study done by Golding et al. (2012), the flashcard method engages mental active recall that promotes stronger neuron connection for memory retention and retrieval. The nature of flashcard games that facilitate repetition is the best way to create multiple memory-enhancing recall events (Golding et al., 2012). Based on the findings, the MiPlato flashcard game can be suggested as a supportive learning tool for self-regulated study. This is able to support the transfer of knowledge from conventional nutritional lectures.

Interactive learning technique used by the MiPlato flashcard game requires students to actively participate with peers in the learning process (Chien, 2015). This kind of social engagement promotes better memory experiences that facilitate nutrition education. The integration of fun in education makes the learning process more attractive and effective. It is believed that a positive learning experience improves the learning outcome of knowledge transfer. In this study, calorie-related information is successfully transferred from one context to another level of learning as shown in the results. MiPlato flashcards game has found to improves the calorie counting assessment score from pre-to-post test.

Multisensory approach of the MiPlato flashcard game suits students' various learning style (Golding et al., 2012). The ability to incorporate visual and auditory information into a flashcard game gives advantage in calorie memorization. It is speculated that the improvement in calorie counting knowledge promotes healthy eating behavior.

In conclusion, the present study offered initial empirical evidence on the effective usage of flashcards in enhancing calorie counting knowledge. MiPlato flashcard effectiveness should be examined in detail by investigating the practical effect of calorie knowledge to daily dietary intake.

NOVELTY OF THE PRODUCT

Numerous studies have employed flashcards as a knowledge-dissemination tool for nutrition education. Focus has been given to the nutrient information but not the calorie. MiPlato flashcards are a game-based learning method that may guide individuals on calorie counting (food calories intake, physical activity calories expenditure). Dietary calorie information is vital for better nutrition awareness.

REFERENCES

World Health Organization (2019). Malaysia and WHO call for more investment in primary health care the 21st century. Retrieved from https://www.who.int/malaysia/news/detail/08-04-2019-malaysia-and-who-call-for-more-investment-in-primary-health-care-the-21st-century

Manios,Y., Moschandreas, J., Hatzis, C., & Kafatos (1999). Evaluation of Health and Nutrition Education Program in Primary School Children of Crete over a Three-Year Period. *Preventive Medicine*. 28 (2), 149-159.

Bobroff, L. B., Turner, R. E., Weddle, D. O., Brake, J. H., Lieberman, L.S. & Allen, T.B. (2003). Interactive Learning for Congregate Nutrition Site Nutrition Education. *Journal of Nutrition for the Elderly*. 23 (1), 81-93.

Chien, C. W. (2015). Analysis the Effectiveness of Three Online Vocabulary Flashcard Website on L2 Learners' Level of Lexical Knowledge. *English Language Teaching*. 8 (5), 111-121.

Bryson, D. (2012). Using Flashcards to Support Your Learning. *Journal of Visual Communication in Medicine*. 35 (1), 25-29.

Mendoza, M. (2007). Improving Nutrition Education of Low-Income Families using Culturally Relevant Patient Materials. *Journal of Investigative Medicine*. 55 (1).

Hawthrone, K. (2001). Effect of Culturally Appropriate Health Education on Glycemic Control and Knowledge of Diabetes in British Pakistani Women with Type 2 Diabetes Mellitus. *Health Education Research*. 16 (3), 373-381.

Golding, J. M., Wasarhaley, N. E. & Fletcher, B. (2012). The use of Flashcards in an Introduction to Psychology Class. *Teaching of Psychology*. 39 (3), 199-202.

2

Padlet Virtual Bulletin Board: An Enhancement Tool for C++ Programming Courses

[1] Normaziah Abdul Rahman, [2] Sri Yusmawati Mohd Yunus, [3] Rozianiwati Yusof,
[4] Nor Azlina Aziz Fadzillah, [5] Norhafizah Hashim

Fakulti Sains Komputer dan Matematik
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

* [1] maziah@uitm.edu.my, [2] sriyusmawati@uitm.edu.my , [3] rozian696@uitm.edu.my ,
[4] norazlina@uitm.edu.my , [5] fiza_hz@uitm.edu.my

ABSTRACT

Teaching and learning through open and distance learning (ODL) during the movement control order (MCO) is quite a challenging experience for those who have never taught and learned online. Online teaching and learning methods seem to be an urgent need along with the changing times and technological advances, even though the world has changed from a pandemic to an endemic phase. The biggest challenge in online teaching and learning is related to the attitude and level of student engagement. Different platforms can be created in this technological age to support online teaching and learning and to fulfil the demands of both students and lecturers. As a result, Padlet has been selected as the learning platform for the C++ course. The concept of this platform is very simple. It's a digital bulletin board that enables users to communicate, reflect, and share links and videos anytime and anywhere. This study focuses on developing a project on Padlet to make students understand the concepts, gain proficiency with the programming language syntax, and master the problem-solving concepts in the C++ language. Each topic in this course has a video, notes, and instructions given to all students. This platform allows them to communicate synchronously and asynchronously, which is a great approach for lecturers and students to collaborate.

Keywords: *Padlet, C++ programming, teaching and learning, videos, Online Distance Learning*

INTRODUCTION

The situation of COVID-19 pandemic has hit the whole world and changed teaching and learning methods from face-to-face to distance and online. On 18 March 2020, the Movement Control Order (MCO) was implemented due to the spread of this virus. At the same time, the pandemic led to the closure of all educational institutions in Malaysia (Ministry of Education Malaysia, 2020; Office of the Prime Minister of Malaysia, 2020). The education culture has changed as a whole, not only in Malaysia but all over the world. In general, online learning is described as a virtual space for face-to-face teaching and learning processes. It used the medium of computer equipment where students can see and listen to other students from a distance in specific settings without requiring them to be in the same place and connected online (Hrastinski, 2019).

The problem of teaching and learning programming at the primary level has become a universal issue in computing education. Face-to-face learning and programming methods practised for a long time have significant problems, not to mention the challenges of teaching online programming (Zin et al., 2006). As a result, they struggle to learn the concept in a programming language, especially during online distance learning (ODL). These teaching and learning sessions are sometimes boring, which only involve one-way communication and sometimes do not get a response from the students. Online distance learning courses are more prone to feeling misunderstood, isolated, and lonely. This makes it difficult to measure the level of student understanding. Therefore, lecturers must be more creative in using all teaching approaches to attract students' interest in following the learning process. To prevent students from experiencing "loneliness," lectures can be delivered synchronously and asynchronously, beyond allocated class hours. (Lowe, 2018; Humphrey, 2018).

The process of teaching and learning programming is considered one of the seven significant challenges in computing education (McGettrick et al., 2005). Studies have reinforced this by several other researchers who also raise the same issue (Johana et al., 2021; Mason, 2012). According to Renumol et al. (2012), the significant factors that contribute to the difficulty of learning programming courses are related to the problem of starting to write a programme, understanding programme logic, dealing with programming language syntax, debugging, lack of knowledge about the operating system and the application environment used. It also involves psychological and physiological aspects.

Programming is one of the challenging courses offered in a high institution for students from various backgrounds. This course is offered to all students, including those majoring in computer science and those who do not, at the Faculty of Computer & Mathematical Sciences, UiTM. This course consists of six topics covering problem-solving analysis, basic elements of C++, input and output statements, selection, repetition, and modular process. In a face-to-face teaching session, students are physically present in a classroom where they are taught theories for two hours and receive hands-on instruction from the lecturer for an additional two hours. As a result, students can better understand programming principles under the lecturer's close supervision. In contrast to online teaching and learning during the pandemic, students were given access to the lecture's slides, instructional videos, and all related resources. Classes, meetings, and online meetings with students were scheduled depending on the weekly schedule established for lecturers and students for fourteen weeks.

There are various applications and equipment that can be used by lecturers. Among the applications often used to make the online teaching and learning process more effective are Google Classroom, Zooms, Microsoft Teams, Kahoot, Quizizz, and Padlet. Different applications have different features, depending on the effectiveness and suitability of the users. (Rofizah, 2020). Each application has its advantages, depending on the purpose and how it is used to connect users online. In this study, the Padlet application was used to encourage student participation in the teaching and learning process of programming online.

PADLET

Padlet is a Web 2.0 online tool widely used in teaching and learning. It provides a one-stop platform for lecturers to share the lecture materials with students. Padlet acts as a classroom bulletin board that the students can use as a reference for a lesson topic. It can be used to customise their platforms and add numerous media resources like videos, images, useful links, a newsletter, fun classroom updates, lesson material, answers to questions, and more. Padlet offers a variety of features for lecturers to choose from, including an online bulletin board, wall, canvas and many more, where lecturers can create a wall with so much information about teaching courses such as ideas, images, videos, links, and documents and collaborate by sharing their students. (Edwards, 2020) as shown in Figure 1.

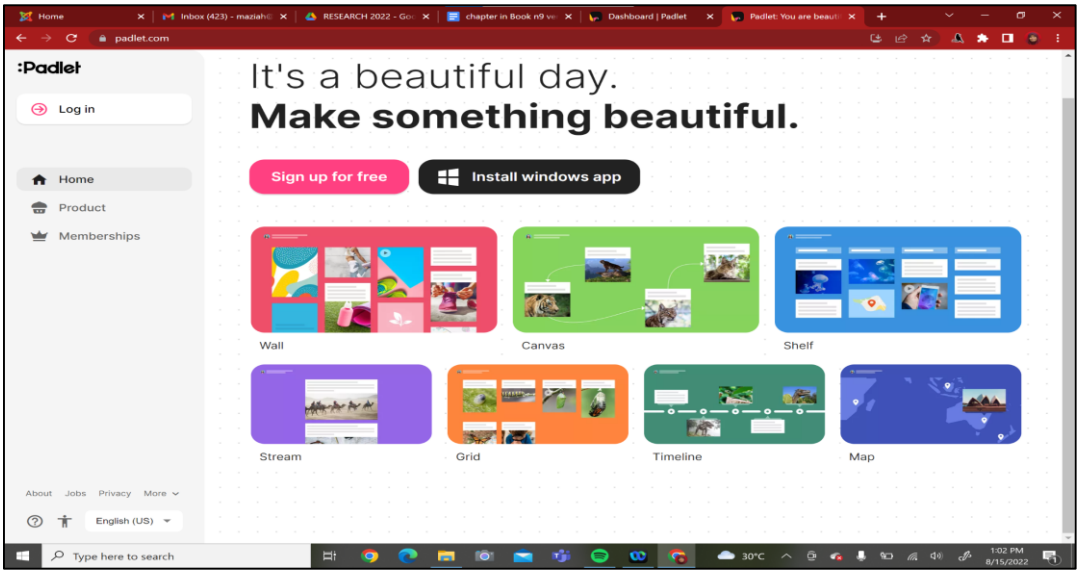


Figure 1 Features of Padlet

ONLINE TEACHING AND LEARNING USING PROPOSED PADLET FOR C++ PROGRAMMING

Before creating a project on Padlet for teaching platform, a survey was conducted involving 130 students who took Programming courses. The finding defined the factors contributing to students' performance: understanding the concepts, proficiency with the programming language syntax, and mastery of the problem-solving concepts. Most respondents preferred using instructional videos for each subtopic and software usage videos to demonstrate how to write, compile and execute programs. This study has focused on developing a Padlet for repetition control structure in C++. Based on the survey, this topic has been identified to be challenging. The lecture videos were embedded in the Padlet, and this platform will facilitate communication between lecturers and students.

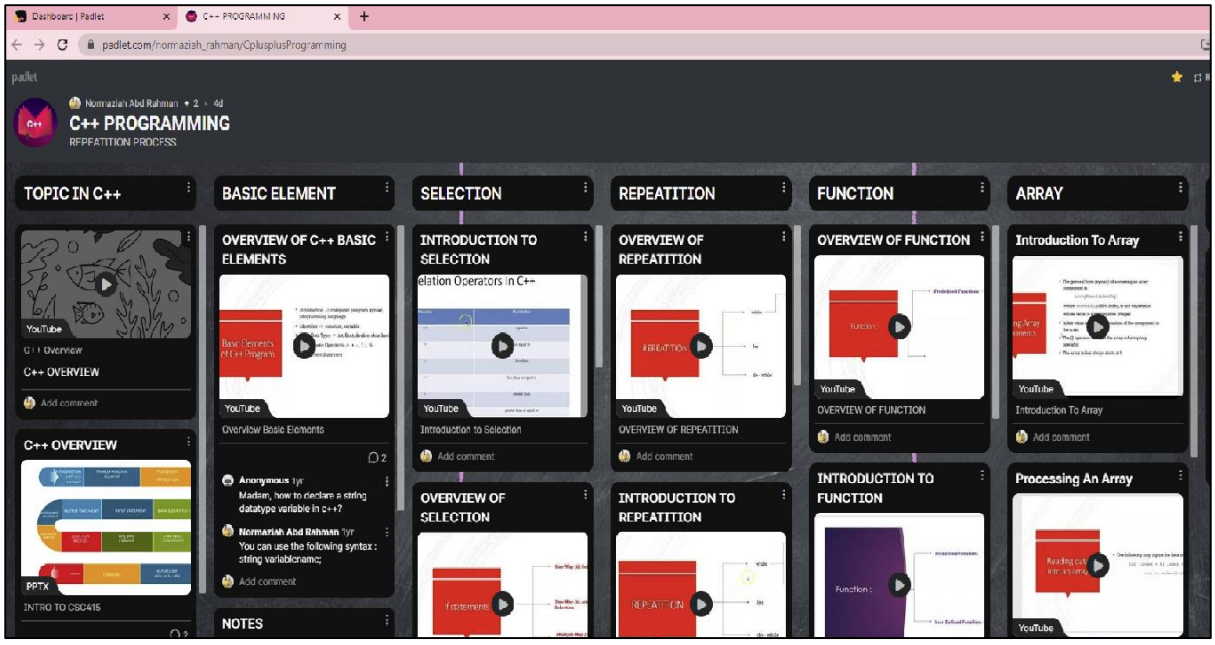


Figure 2 Contents Arrangement in C++ Program Course Padlet

The proposed Padlet for the C++ Programming course used the shelf template format, as shown in Figure 2 above. It shows the content arrangement for all C++ Programming course topics. Each topic was arranged by a column comprising all the information for that topic, such as presentation slides for the note, videos attached with the YouTube links, and form of discussion according to each topic.

The application of Padlet in sharing the learning content provides various benefits to students and lecturers. In general, teaching and learning programming online take longer than face-to-face methods, which can be caused by technical problems such as application settings and unstable Internet connection problems. With the help of Padlet, students can communicate with the lecturers either online or offline and have access to all the resources at any time and from any location. Besides that, during the programming course laboratory session, students must solve programming problems. Thus, it requires immediate feedback from the lecturers to debug the program and check the students' answers. The lecturers can respond immediately to the students to complete their programme.

During the laboratory session, students were given a programming exercise to identify input, process, and output and produce a flow chart for the problem within the set time. Students will upload their answers through the assigned class code. Figure 3 shows a slideshow of the replies submitted by students using the Padlet. To get immediate feedback, a Padlet called a brainstorming session was included once to make it easier for students to have discussions between students and lecturers.

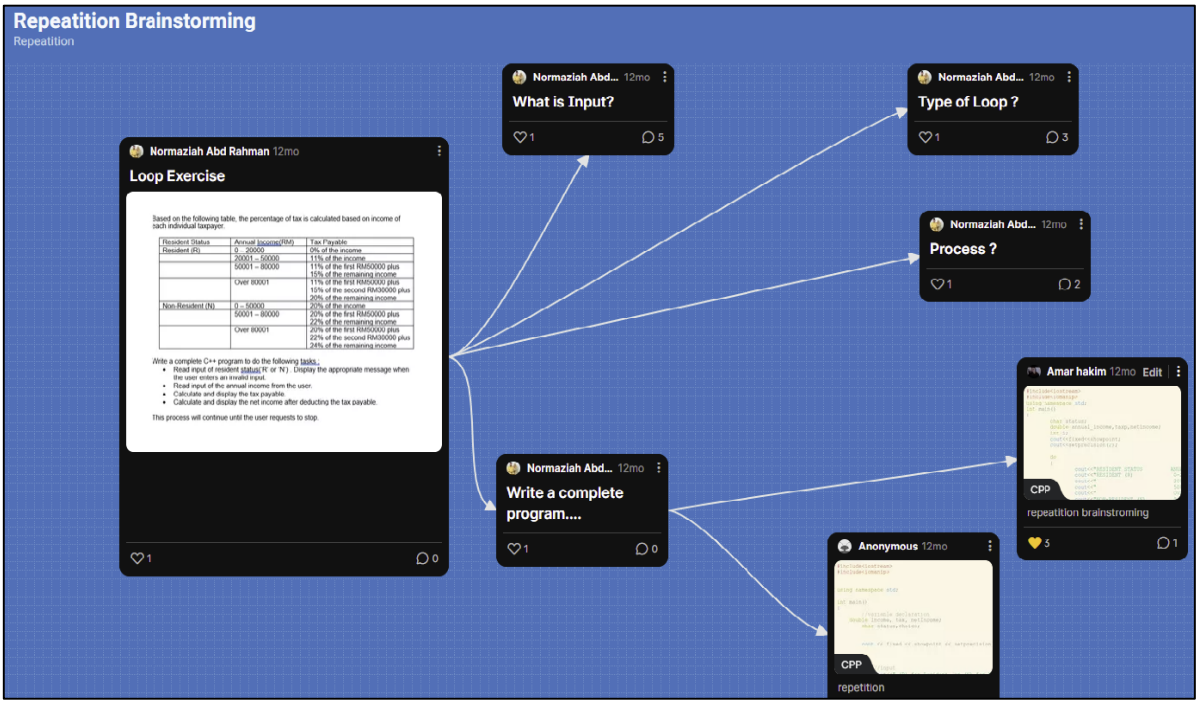


Figure 3 Brainstorming Session Padlet

In addition to teaching materials, students can see their level of understanding by answering quizzes provided in Quizizz, as shown in Figure 4.

Figure 4 Link to Quizizz

CONCLUSION

The use of the Padlet application shows the overall involvement of students during the implementation of online programming teaching and learning. This can be seen through observations made during the online programming teaching and learning process. Students provided positive feedback on using and accepting the Padlet application, especially during teaching and when performing programming tasks. This application can be used as one of the alternatives to teaching and learning programming methods online. This approach can indirectly meet the demands of learning at the time, emphasising the aspects of creativity, communication and technological literacy, information, and communication.

REFERENCES

Edwards, L.(2022, May 09). What is Padlet and How Does It Work for Education?. https://www.techlearning.com/how-to/what-is-padlet-and-how-does-it-work-for-teachers-and-students

Hrastinski, S. (2019). What do we mean by blended learning?. TechTrends, 63(5), 564-569.

Johana, E., Mohd Salleh, S., & Abd Aziz, Z. (2021). Pendekatan Teknologi Persuasif Memicu

Peningkatan Motivasi Pelajar Menangani Permasalahan 'Mati Akal' Dalam Penyelesaian Tugasan Makmal Pengaturcaraan Berorientasi Objek. Jurnal Dunia Pendidikan, 3(4), 189-209. https://myjms.mohe.gov.my/index.php/jdpd/article/view/16271

Lowe, T., & Humphrey, O. (2018). A Platform for Partnership: A Technology Review of the Padlet sharing platform. The Journal of Educational Innovation, Partnership and Change. https://doi.org/10.21100/jeipc.v4i1.706

Mason, R. (2012). Designing introductory programming courses: the role of cognitive load [Doctoral dissertation, Southern Cross University]. https://researchportal.scu.edu.au/discovery/delivery/61SCU_INST:ResearchRepository/12671436900023 68?l#1367464050002368

McGettrick, A., Boyle, R., Ibbett, R., Lloyd, J., Lovegrove, G., & Mander, K. (2005). Grand challenges in computing: Education—a summary. The Computer Journal, 48(1), 42- 48.

Renumol, V. G.; Jayaprakash, S. & Janakiram, D. (2012). Classification of Cognitive Difficulties of Students to Learning Computer Programming. Education Research: 12.

Rofizah Mohammad, (2020) Pembelajaran dalam talian segerak: kepuasan pelajar terhadap penggunaan Microsoft Teams. Journal of Quality Measurement and Analysis, 16 (2). pp. 219-230. ISSN 1823-5670

Zin, A. M., Idris, S., & Subramaniam, N. K. (2006). Improving learning of programming through e-learning by using asynchronous virtual pair programming. Turkish Online Journal of Distance Education, 7(3). 162-173.

3

Digital Games: Interactive Applications for Students' Learning in a Classroom

Nurhidayah Nasharudin
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
nurhidayah204@uitm.edu.my

Zati Atiqah Mohamad Tanuri
Universiti Teknologi MARA Cawangan Kedah
Kampus Sungai Petani
zatiatiqah@uitm.edu.my

Nurfaizah Kamarudin
Universiti Teknologi MARA Cawangan Sarawak
Kampus Samarahan
nurfa601@uitm.edu.my

Mohsinin Mohsin
Universiti Teknologi MARA Cawangan Sarawak
Kampus Samarahan
mohsinin477@uitm.edu.my

ABSTRACT

Interactive quizzes and puzzles are powerful digital tools to attract attention, focus, and interest. The advancement of technology might enable the instructor, such as a teacher or lecturer, to design the content and to teach delivery in creative ways by using the resources available, such as the Quizizz and Crossword platforms, as well as the interactive slides to engage with students in a fun learning environment. Students are observed to be enjoyable and understanding in learning the course through interactive ways of delivering the lessons.

Keywords: Digital Games, Educational Application, Educational Games, Quizizz.

INTRODUCTION

In recent years, gamification in education has drawn a lot of attention. Gamification, on the other hand, is the technique of incorporating elements of game design, game mechanics, and game thinking into non-game activities to compel participation (Al-Azawi et al., 2016). Instructors have been looking for innovative ways to improve student's educational experiences, especially in this technologically advanced age. Educational games are one of those tactics (Minovic et al., 2012). The most popular applications for educational games are Quizizz, Kahoot, Worldwall, Crossword Puzzle, etc.

The Quizizz application may give the students an engaging and enjoyable workout experience, particularly when it comes to answering questions. After the students respond, Quizizz immediately displays the memes to let them know whether their response is correct. An educational game-based programme called Quizizz brings interactive activities into the classroom and gives pupils a fun learning experience. In this instance, students can practise the lessons they have learned using a laptop,

smartphone, or other electronic devices. They can also engage in friendly rivalry when taking the quiz with their friend and Quizizz's scoreboard, which displays the students' rankings in a fun way (Zhao, 2019).

The focus of the online gamified pedagogical tool "KAHOOT!" is student motivation and involvement. It is a quick-paced assessment tool that sounds like a "game-show," allowing teachers to keep track of their student's progress while they play a "game" (Licorish, Owen, Daniel, & George, 2018). A previous study also reported that using gaming instructional tools in a fun and exciting manner had a positive impact on the students and teachers (Jones et al., 2019). The nature of the application effectively entices the attention of students to participate in the class, as the application is game-like with competitive activities that promote students to have fun in learning (Taesotikul et al., 2021). Other than that, the use of interactive crossword puzzles was found to be a useful learning tool in the current study. Students reported that the activities helped to solidify their knowledge, contributed to their learning, and kept them engaged collaboratively and competitively (Abubaker et al., 2022).

BACKGROUND

Introduction of Information Skills (IMC111) introduces the students to information skills. Students in the first semester must register for this course. This course is an overview of information resources and the skills required to use them effectively. Through lectures, hands-on, assignments, and other methods, students learn how to use library resources, such as electronic indexes and databases, and online services as well as develop strategies for conducting research.

The project is initiated to assist students in understanding effectively the topics discussed. The topics, namely as; types of libraries, Online Public Access Catalog (OPAC), and classifications are being selected to be taught by different lecturers from different campuses. In this project, the lecturers designed the contents and teaching delivery in creative ways by using the resources available such as Quizizz and Crossword platform, as well as the interactive slides to engage with students in a fun learning environment.

OBJECTIVES

The objective of the project is to demonstrate effective techniques of blended learning for information skills in classroom sessions at the higher educational level. This project is purposely to expose the student's opportunity to learn and collaborate with the different lecturers involving Kedah, Sarawak & Negeri Sembilan Campus. Students will learn how to cope with different classmates, environments, and better learning experiences across three (3) campuses; UiTM Rembau Campus, UiTM Sungai Petani Campus, and UiTM Samarahan Campus. The sessions used the Webex platform to gather all the participants. Students were exposed to enjoyable learning sessions by participating in simple quizzes using Quizizz Application, Kahoot, Worldwall, and Crossword Puzzle.

DESCRIPTION OF THE PROJECT

The contents are designed by using PowerPoint Presentation with interactive slides, namely; Guess the Word, Q & A, Crossword, and Quizizz platforms. At the end of sessions, the quiz is conducted by using the Quizizz Application to measure the student's understanding of the topics below:

a. Types of Libraries
b. OPAC
c. Classifications

NOVELTY

The collaborative teaching project provides alternative methods to assist and guide students to know and understand the techniques in information skills. Furthermore, it is the first collaborative teaching with an interactive teaching method using gamification involving lecturers and students from UiTM Rembau Campus, UiTM Sungai Petani Campus, and UiTM Samarahan Campus.

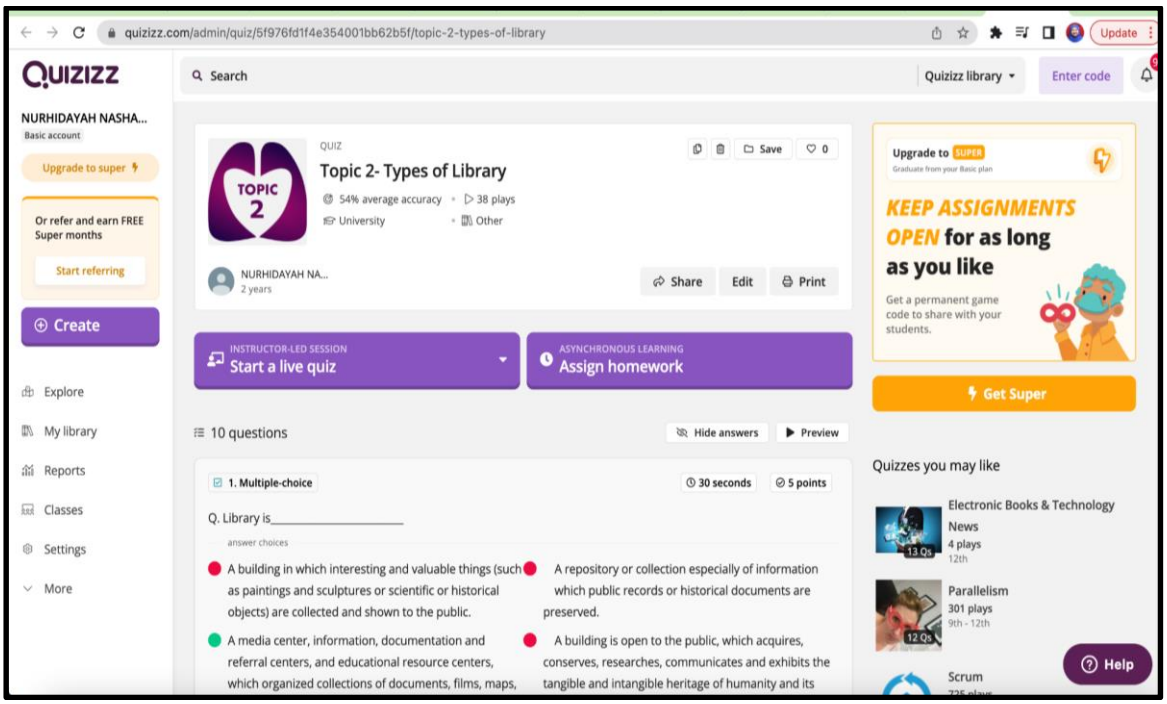


Figure 1 Interface of Quizizz Questions

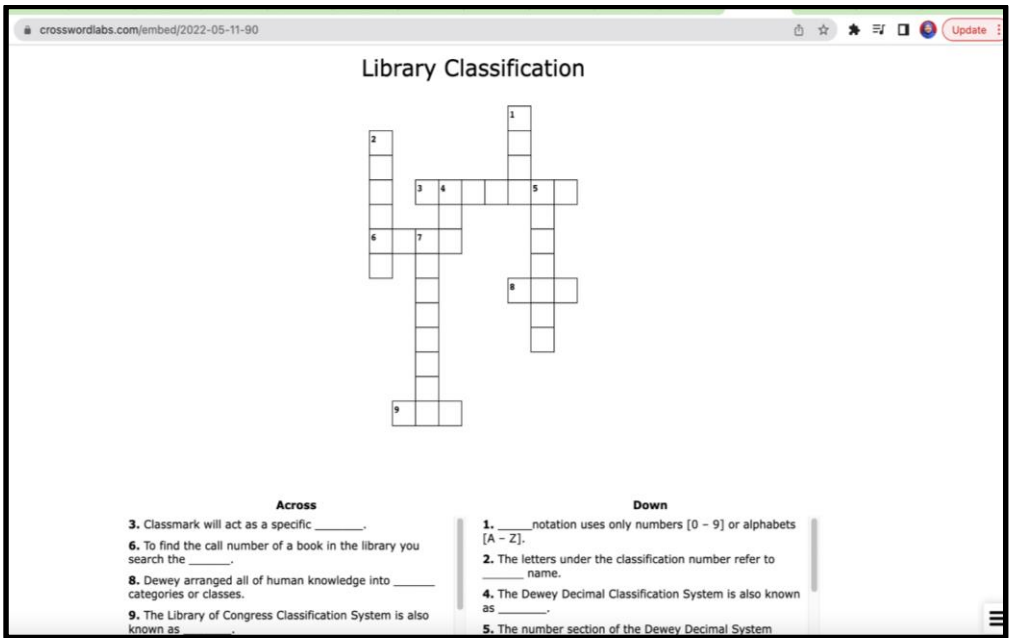


Figure 2 The Crossword Puzzle

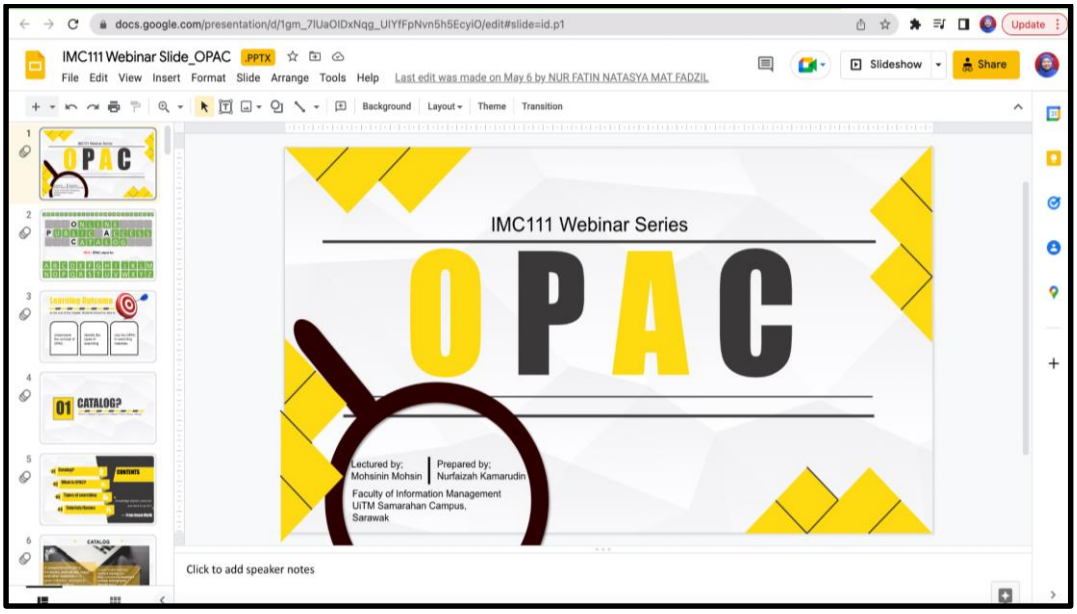


Figure 3 Interactive Design of PowerPoint Slide

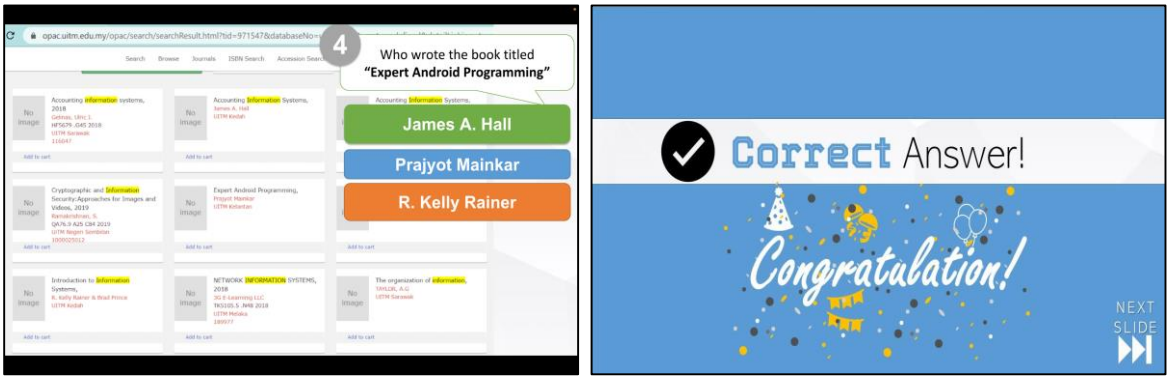


Figure 4 Short Quiz in PowerPoint Slides

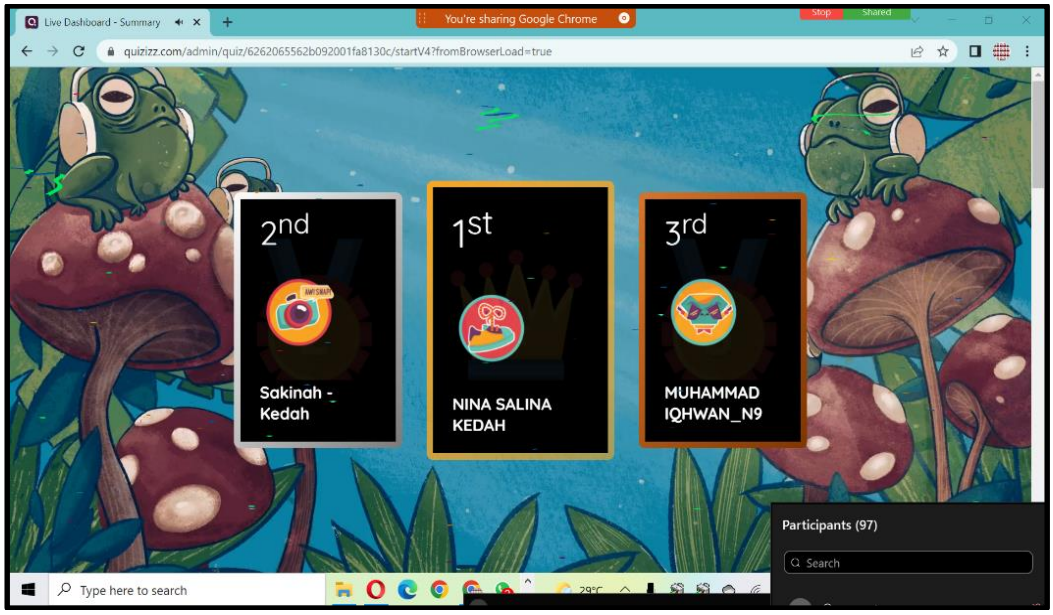


Figure 5 The Participation of Students

Figure 5 The Live Session with Students

As the results are announced, the winning students are eligible to get a prize for their participation.

CONCLUSION

The results from the observation demonstrate that gamification combined with conventional teaching techniques can improve students' motivation for learning and learning outcomes. According to Gibson et al. (2015), gamification and rewards for students in online educational activities motivate students to engage in class and promote success. Gamification activities enriched the learning process and had a positive effect on student success (Ozturk & Korkmaz, 2020). This collaborative group teaching approach exposed students to learn the course from different lecturers from three different campuses. Some of the feedback from students involved stated that “it is a great opportunity and a fun way to learn”, “very fun”, “fun and interesting”, and “excellent and easier to understand”. Students are observed to be enjoyable and understanding in learning the course of the interactive ways of delivering the lessons. This project is initiated to facilitate students to be more understanding and able to comprehend the topics learned. The public can benefit from the questions asked in the Quizizz platform as well as the slides shared with them. It is convenient for them to understand the topic by answering the questions on the Quizizz platform personally. In conclusion, instructional games are growing in popularity as educational technology advances, making learning sessions more enjoyable.

REFERENCES

Abubaker Qutieshat, Nutayla Al-Harthy, Gurdeep Singh, Chopra, V., Rayhana Aouididi, Dileesh, S., Mohammad S Alrashdan. (2022). Interactive crossword puzzles as an adjunct tool in teaching undergraduate dental students. *International Journal of Dentistry, 2022*(1), 1-10. https://doi.org/10.1155/2022/8385608

Al-Azawi, R., Al-Fatma, F., & Al-Blushi, M. (2016). Educational gamification vs. game based learning: Comparative study. *Int. J. Innovat. Manag. Technol. 7*, 132–136. https://doi.org/10.18178/ijimt.2016.7.4.659

Gibson, D., Ostashewski, N., Flintoff, K., Grant, S., & Knight, E. (2015). Digital badges in education. *Education and Information Technologies, 20,* 403–410. https://doi.org/10.1007/s10639-013-9291-7

Jones, S. M., Katyal, P., & Xuan, X. (2019). A 'KAHOOT!' approach: The effectiveness of game-based learning for an advanced placement biology class. *Simulation & Gaming, 15*(6), 832-847. https://doi.org/10.1177/1046878119882048

Licorish, S. A., Owen, H. E., Daniel, B., & George, J. L. (2018). Students' perception of Kahoot!'s influence on teaching and learning. *Research and Practice in Technology Enhanced Learning, 13*(1), Article 9. https://doi.org/10.1186/s41039-018-0078-8

Minovic, M., Milovanovic, M., Kovacevic, I., Minovic, J., & Starcevic, D. (2012b). "Motivational and cognitive aspects of applying educational games as a learning tool," in *Handbook of Research on Serious Games as Educational, Business and Research Tools*, ed. M. M. Cruz-Cunha (Pennsylvania: IGI Global), 892–917. https://doi.org/10.4018/978-1-4666-0149-9.ch046

Ozturk, C., & Korkmaz, O. (2020). The effect of gamification activities on students' academic achievements in social studies course, attitudes towards the course and cooperative learning skills. *Participatory Educational Research (PER), 7* (1), 1-15. http://dx.doi.org/10.17275/per.20.1.7.1

Taesotikul, T., Chinpaisal, C., & Nawanopparatsakul, S. (2021). *Kahoot! gamification improves learning outcomes inproblem-based learning classroom*. 3rd International Conference on Modern Educational Technology (ICMET 2021). 125–129. https://doi.org/10.1145/3468978.3468999

Zhao, F. (2019). Using quizizz to integrate fun multiplayer activity in the accounting classroom. *International Journal of Higher Education, 8*(1), 37–43. https://doi.org/10.5430/ijhe.v8n1p37

4

Local Government Concept Mapping – Students' Learning Tool

[1] Nur Ain Yaacob, [2] Suzei Mat Nurudin, [3] Zarina Mohd Zain

Faculty of Administrative Science & Policy Studies
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] nurainyaacob@uitm.edu.my, [2] suzei509@uitm.edu.my, [3] zarina752@uitm.edu.my

ABSTRACT

Local government, also known as the local authority, is the third tier and most significant element in the administrative structure of the government in Malaysia, after the federal and state governments. Its primary role is to provide services and basic amenities to local citizens within its administrative territory, which has been established by the state government. The existence of local government serves as a facilitator on behalf of the federal and state governments since the functions and duties carried out by local government encompass a wide range and are crucial to the growth of the country. This study focused on the learning aids required by students to grasp the local government course offered by the Faculty of Administrative Science and Policy Studies (FSPPP) for the final year students of the Diploma in Public Administration. The development of this Local Government Concept Mapping – Students' Learning Tools may enable students in developing a deeper comprehension of Malaysia's local government structure. It's a set of interactive revision notes that make it easy for students to quickly see all the related information at a glance and also help them remember the information they need. Additionally, it was created to impart crucial knowledge about local government administration by utilizing designated concepts with attractive and colorful visual elements to help students quickly understand the learning content.

Keywords: local government, concept map, administration, facilitator, and government

INTRODUCTION

Malaysia's government is based on the Federalism system. It has three important administrative systems, with the federal government at the top, followed by the state government, and then the local government at the bottom. The local government governs a sub-district in a state to manage and serve the local community in the area that has been identified by the state government (Ahmad Atory, 1991). The model of local government in Malaysia is slightly different from the West practice, especially in terms of the wider local government jurisdiction. However, some aspects such as the amount of power entrusted to the local government are still similar to the system practiced by the British Government (Mohd Razali 1992). In Europe and other developed countries, local governments are among the bodies that play an important role in the conservation and preservation work of heritage buildings. So one of the ways to enable the Local Authorities to carry out their duties as planned is needed a strong act.

In Malaysia, local government is subjected to and supported by the Local Government Act 171 which outlines jurisdiction and becomes the main reference for the local government administration. Under this act, the local government has its authority over local affairs, including the power to collect tax revenue (assessment tax) and non-tax revenue (summons, parking coupons, etc.). In addition, in a developing country like Malaysia, a local government is the agency closest to the local community. The local government plays an important role in the aspect of community development. It has important

functions for the local community in the aspect of local administration, provision of business space, and other services.

As identified by Nor Suhaiza et al. (2017), students faced difficulties to comprehend the content of local government subjects. Thus it is hoped that the Local Government Concept Mapping – Students' Learning Tools, can be effective learning aids to help them in studying the subject.

METHODOLOGY

The purpose of the study is to identify the learning aids needed by the students of the Diploma in Public Administration at Universiti Teknologi MARA (UiTM) registering for a Local Government course. The researcher conducted the quantitative study by distributing a set of questionnaires to the students on UiTM campuses to get their feedback. The results found that students need clearer guidance to assist them in learning and one of their requests is a mind map for each chapter. To improve students' comprehension and provide engaging tools for studying local government topics, the researcher created a Local Government Concept Mapping – Students Learning Tools which has two forms of innovative products namely concept mapping informative local government notes (Suzei et al., 2020) and desk calendar - illustrative local government mind map (Suzei et al., 2021) and utilizing a mix of interactive mind map notes and illustrated notes using a desk calendar. In addition, these products can also be used by the local community to recognize and understand the local government. With the result of the product, students can know better and understand more of the local government content.

RESULTS & DISCUSSION

The questionnaires were distributed to the UiTM students. A total of 75 respondents who are final year Diploma in Public Administration students have given their feedback. Based on the questionnaire result analysis, the study found the following learning aids for local government subjects.

Table 1
Respondents

Campus	Number of respondents
Seremban 3	45
Kelantan	15
Melaka	15

From the findings, 45 respondents were from Seremban 3 campus and the remainder were from Kelantan and Melaka campus students representing 15 each.

Table 2
Learning content is easy to learn and understand

Option	Number of respondents
Yes	57
Not Sure	17
No	1

The survey also identified the respondent's opinions on local government learning content. The analysis shows that 57 of the students agreed that the learning content is easy to learn and understand by the students and 17 responded that they are not sure whether the content is easy or not. However, only 1 respondent felt that the local government subject is not easy to learn and understand.

Table 3
Learning aids needed for Local Government subject

Learning aid	Number of respondents
Mind Maps for Each Chapter	48
Compilation Of Past Year Exam Questions	39
Glossary Of Local Government Terms	36
Exercise Question for Each Chapter	46

Responded to the learning aids needed by the students for local government subjects, 48 agreed that mind maps are the most helpful learning aids. Meanwhile, 46 of them also said that they need exercise questions for each chapter. 39 other respondents preferred the compilation of past exam questions while 36 chose the glossary of local government terms.

Table 4
Most effective learning aids for the local government subject

Most effective learning aid	Number of respondents
Compilation Of Past Year Exam Questions	13
Mind Maps for Each Chapter	35
Glossary Of Local Government Terms	17
Exercise Questions for Each Chapter	10

Regarding the most effective learning aids for local government subjects, the highest respondent opted for a mind map for each chapter as their main preference (35). 17 chose a glossary of local government terms and 13 students preferred a compilation of past year exam questions as the most effective learning aids for local government subjects. Exercise questions for each chapter were chosen by the remaining 10 students.

PRODUCT ILLUSTRATION

The content of the product referred to the syllabus of local government which has been transformed into the creative mind map and illustrated in the desk calendar form. The design is illustrated to help and ease students in understanding the learning content and help their revision of the subject. The innovation is identified from the student's feedback and has helped the students to score for the subject. This is the first product that combines the unique features of the learning content in creative ways and the product can be bought from the lecturer in charge of the course with the cost of RM10.00 for product 1 (concept mapping informative local government notes) and RM12.00 for the product 2 (desk calendar - illustrative local government mind map).

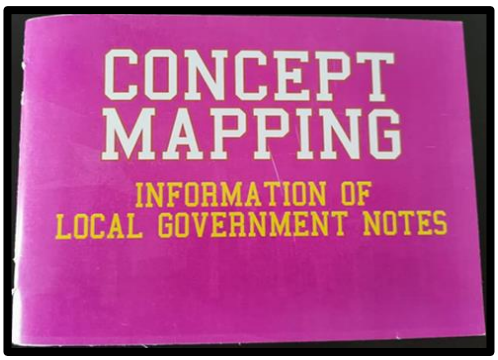


Figure 1 Local government notes

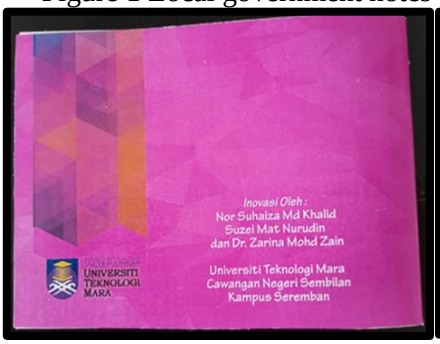


Figure 2 Product 1: Concept Mapping Informative

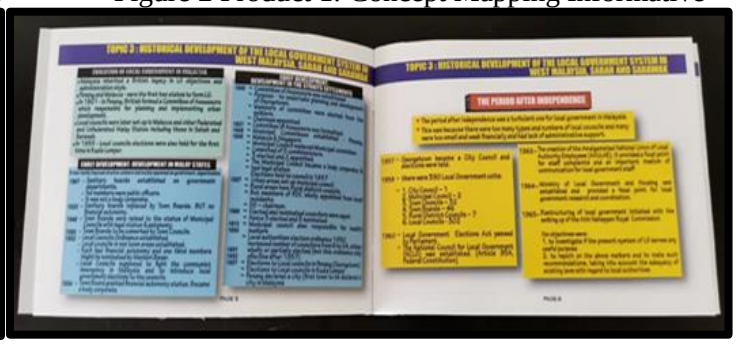


Figure 3 Product 2: Desk Calendar - Illustrative Local Government Mind Map

Figure 4 Design and development of the product

CONCLUSION

In conclusion, Local Government Concept Mapping – Students' Learning Tools is an effective tool for enhancing students' knowledge of Local Government subjects. This innovative product will hopefully help students in reviewing and performing better preparing themselves for tests and final exams. This created an innovative product based on the feedback gathered from the student's responses and has joined the innovation as listed in the acknowledgment. It is suggested that future studies look at how this product affects the performance of students in their tests and the final exam for this subject.

ACKNOWLEDGMENT

Our greatest appreciation to the Faculty of Administrative Science and Policy Studies (FSPPP), University Technology Mara for the sponsorship given which has enabled us to participate in the following innovation competitions:

a.	CONCEPT MAPPING INFORMATIVE LOCAL GOVERNMENT NOTES - Silver Award (International, Invention & Innovative Competition, INIIC 2020)
b.	DESK CALENDAR - ILLUSTRATIVE LOCAL GOVERNMENT MIND MAP - Gold Award (International Innovation Competition, INNOCOM II 2021)

REFERENCES

Ahmad Atory Hussin. (1991). Kerajaan Tempatan: Teori dan Peranan di Malaysia. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Mohd Razali Agus (1992). Pembangunan Perumahan: Isu dan Prospek. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Nor Suhaiza Binti Md Khalid, Suzei Binti Mat Nurudin @ Nordin, Zarina Binti Mohd Zain (2017). Pemahaman Pelajar Terhadap Konsep Kerajaan Tempatan di Malaysia: Pocket Dictionary In Local Government, Chapters in Book, International Intellectual Exposition 2017, 115

Suzei Binti Mat Nurudin @ Nordin, Nor Suhaiza Binti Md Khalid, Zarina Binti Mohd Zain (2020). Student Learning Aids for The Subject on Local Government International Invention, Innovative & Creative (In-IIC) Conference Series 2/2020

Suzei Binti Mat Nurudin @ Nordin, Nor Suhaiza Binti Md Khalid, Zarina Binti Mohd Zain (2020). Concept Mapping - Informative Local Government Notes for Revision Purpose – Changing Lifes in Brilliant Way Series Chapter in Book, International Invention, Innovative Competition (InIIC) Conference Series 2/2020

Suzei Mat Nurudin, Dr. Zarina Mohd Zain & Nur Ain Yaacob (2021). Desk Calendar - Illustrative Local Government Mind Map International Innovation Competition (INNOCOM II 2021).

5

Introduction to Statistics E-Content for Self-Learning

[1] Nurul Aityqah Yaacob, [2] Siti Noor Dina Ahmad, [3] Yusrina Andu

Faculty of Computer and Mathematical Sciences
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah

[1] aityqah@uitm.edu.my, [2] dinaahmad@uitm.edu.my, [3] yusrinaandu@uitm.edu.my

ABSTRACT

In higher education, statistics is one of the most significant quantitative disciplines. Nonetheless, the subject might be challenging to many average students from diverse backgrounds because of the utilisation of traditional teaching methods such as memorisation. The use of traditional teaching methods has a negative influence on students' interest in learning statistics. Modifications to statistics teaching are necessary to make learning more interesting, useful, and motivating. One of the ways is by using technology, as it can eliminate problems associated with learning statistics, allowing teachers and students to interact and share knowledge. Therefore, the goal of the current study is to examine students' perceptions of online self-learning on the introduction to statistics by providing students with independent learning opportunities. Interactive content and fun learning materials, including notes and simple quizzes via Google Sites, are developed to engage students with statistics. The current study found that using e-content to learn basic statistics is a good way for most students to learn on their own and understand the subject better.

Keywords: e-content, statistics, self-learning

INTRODUCTION

Statistics is one of the compulsory subjects for undergraduate university students (Jamil et al., 2019). Students must understand and interpret statistical results to obtain meaningful information (Male & Lumbantoruan, 2021). The traditional way of learning statistics requires students to memorise facts and take notes during lectures. However, these activities may cause students to lose interest in the subject. The amount of information that students have to quickly process and understand may also make the learning process less effective. Therefore, it is pertinent to provide a more convenient and attractive alternative to the traditional learning of statistics for students.

COVID-19 and the Malaysia Movement Control Order (MCO) have transformed teaching and learning in all higher education institutions in Malaysia (Nordin & Nordin, 2020). Online learning is adopted as the approach allows students to access lessons at any time and venue at their own pace. Easy accessibility to the internet and mobile gadgets allows the transition and provides opportunities for teaching and learning experiences. As a result, the transition from face-to-face learning to using an online learning platform is adapted for a few semesters. Suitable educational content is designed and developed to attract and assist students in understanding academic subjects better. In UiTM Kampus Rembau, online materials developed are useful to provide students with independent learning opportunities. For example, interactive materials consisting of STA104 notes and quizzes were developed and shared with the diploma students who took the course to allow online learning of the subject. The e-content of the course was developed based on two goals:

a. To provide students with independent learning opportunities.
b. To examine students' perceptions of self-learning online for an introduction to statistics

Some research has been carried out to examine the perceptions of self-learning using online learning platforms (Male & Lumbantoruan, 2021; Razami & Ibrahim, 2021; Surani & Hamidah, 2020), but only a few studies have focused on the student perceptions of online self-learning in statistics. Therefore, the results of the current study will be useful to discover the student's perception of self-learning using online materials.

The setup of this paper is as follows. First, we describe the method applied to this innovation. Second, we discuss the findings and the results of the students' perceptions of online self-learning on the introduction to statistics. Next, the design and development of the product are explained. Finally, we highlight the novelty of the innovation.

METHODOLOGY

In the current study, a methodological strategy to help students learn about assessment was to use Google Sites to create e-content. A quantitative study using a survey was adopted to discover how students feel about self-learning as an approach to learn statistics. An online questionnaire via Google Form was used to collect data because it was the most effective way to collect data to date. This method of data collection is feasible and allows quick access to participants' responses via widely available links which can then be shared online via email, WhatsApp, or Telegram (Raja, 2018).

The online questionnaire of the current study was divided into two parts: Part A and Part B. The demographic profile components from Part A were created using multiple-choice questions, whereas Part B asked students to answer questions on a four-point Likert scale about their experiences with self-learning. Students taking the STA104 course at UiTM Kampus Rembau were chosen as respondents to collect data for this study.

FINDINGS AND DISCUSSION

The findings of the current study are based on the test results and responses from the study participants. Table 1 and Table 2 present the results of the study.

Table 1
The demographics of respondents

Items	Respondents	Total number of students	(%)
Gender	Male	8	16.0
	Female	42	84.0
Group	N5BA1112B	19	38.0
	N5BA1192C	18	36.0
	N5BA1192D	13	26.0
	Total	50	100.0

According to Table 1, from a total number of fifty students who took the survey, forty-two were female and eight were male. Most of them came from the N5BA1112B group (38.0 %), while the others were from N5BA1192C group (36.0 %), and the N5BA1192D group (26.0 %).

Table 2
Self-learning experiences of students

Item	Statements	Strongly Disagree	Disagree	Agree	Strongly Agree
1	Online learning modules helped me understand the course material.		1(2%)	32(64%)	17(34%)
2	Online assignments or activities were helpful in understanding the course content.		1(2%)	31(62%)	18(36%)
3	The online components of this course worked well to promote learning.			34(68%)	16(32%)
4	I would recommend online courses to a friend.		7(14%)	32(64%)	11(22%)
5	Overall, I am satisfied with this online course.			34(68%)	16(32%)
6	The time I spent online would have been better spent in a face-to-face class.	1(2%)	6(12%)	27(54%)	16(32%)

Based on Table 2, six statements were developed regarding the self-learning process for the topic of Introduction to Statistics. Regarding Item 1, 32 people (or 64 %) believed that online learning modules helped students understand the course material. 34 percent of the total respondents strongly agreed with the statement. Only one student disagreed with the statement in Item 2, which stated that online assignments and activities assist students in learning the course content, whereas 36 percent of the total respondents strongly agreed and 62 percent agreed with the statement. To conclude, the findings from Item 1 and Item 2 suggest that online content is easy for students.

Next, 68 percent of the study participants agreed and the remaining 32 percent strongly agreed with Item 3, which claimed that the course online component assisted students in learning. The results of the study suggest that e-content is good for students. As a result, 64 percent of the participants agreed while 22 percent strongly agreed that they would promote e-content to their friends (see Item 4). However, a total of 14 percent of the study participants refused to recommend taking an online course to their friends. Following interviews and research revealed that these students did not recommend e-content because they believed everyone already knew how successful e-content is.

Meanwhile, the overall satisfaction with the given online course in Item 5 shows 68 percent of respondent agreement and 32 percent strongly agreed. This finding reveals that students feel safe taking this online course. Finally, for Item 6, the majority of the study participants (54 %) agreed, while 32 percent of the study participants strongly agreed that time spent online was better than time spent in face-to-face lessons. However, a total of six study participants disagreed, and one participant strongly disagreed with this statement.

DESIGN AND DEVELOPMENT OF THE PRODUCT

Chapter 1: The Introduction to Statistics was used to plan and build the digital content. This chapter covers five subtopics:

- definition and types of statistics
- types of variables and data
- types of measurements
- introductions to sampling techniques
- introduction data collection methods

Each subtopic was complemented by short comprehension exercises. We focused on this chapter because students were required to explain the definitions, the variables and data, and the measurements of statistics, as well as how sampling works and how data is collected. The digital content was created for students enrolling in a statistics course (STA104) at UiTM Kampus Rembau. They were from groups N5BA1192B, N5BA1192C, and N5BA1192D. Dai and Xia (2020) believe in 'school is out, class is on' environment. They reveal that it is possible for students to learn on their own through the school's self-developed e-learning platform because personalised learning resources help students to perform.

Through the use of digital content, students are encouraged to learn on their own and at their own pace. The content and assessment for the current study were developed using a third-party tool, Google Sites. Google Sites was chosen as it is a website that stands on its own. The site also allows other online learning tools. With the availability of online learning, students can use it whenever and as often as they want. Notes from Chapter 1 (Introduction to Statistics) and easy quizzes were publicly viewable on Google Sites. Hence, students, or even anyone, could use the online notes to learn on their own and review the basics of statistics without paying anything. The e-content through Google Sites can be accessed at https://sites.google.com/view/stat-and-prob/home/chapter-1. Figure 1 depicts a website image used for e-content.

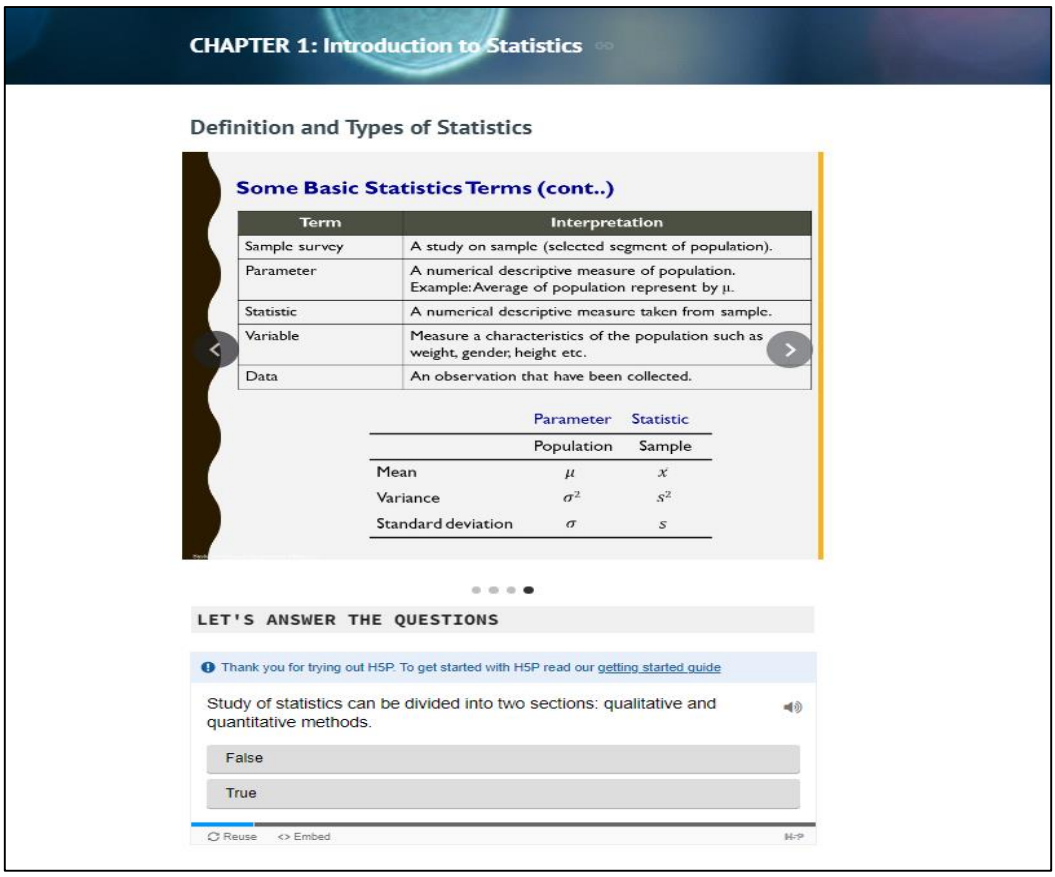


Figure 1 A screenshot of e-content on a website

NOVELTY OF THE PRODUCT

Due to the COVID-19 pandemic, educators all over the world had to quickly transition from traditional classroom teaching to online teaching. They had to create a meaningful and interesting online environment for their students to make them learn and understand the content of a subject better. Best of all, online content encourages self-learning. Self-learning is when a person makes efforts to figure out what they need to learn by setting goals for learning, finding related resources, and evaluating their

knowledge. The current study believed that students can greatly benefit from the online content created on Google Sites. This is because students were given the freedom to study on their own, at any time, and in any place. The content was available for free and accessible via a desktop computer, a laptop computer, or a mobile phone. To sum up, students enrolled in this course gained two innovative aspects of e-content development which were:

a. Self-learning: The created e-content is useful for students because it can be accessed from anywhere in the world. Thus, self-learning can occur at any time and in any location.

b. Interactive learning environment: The creation of an engaging learning environment is possible through the use of interactive materials and activities. As a result, this can assist students in developing a better understanding.

REFERENCES

Dai, D., & Xia, X. (2020). Whether the school's self-developed e-Learning platform is more conducive to learning during the COVID-19 pandemic? *Best Evid Chin Edu*, *5*(1), 569-580.

Jamil, N. I., Ali, R., Ahmad, S. N. D., Yaacob, N. A., & Mohamed, N. (2019). Factor analysis in identifying domains of a learning tool instrument. *Journal of Engineering and Health Sciences*, *3*(1), 17-24.

Male, H., & Lumbantoruan, J. H. (2021, June). Students' perceptions and attitudes towards statistics. In *2nd Annual Conference on blended learning, educational technology and Innovation (ACBLETI 2020)* (pp. 507-513). Atlantis Press.

Nordin, N., & Nordin, N. (2020). Impact of Pandemic COVID-19 to the Online Learning: Case of Higher Education Institution in Malaysia. Universal Journal of Educational Research 8(12A): 7607-7615.

Raja, T. (2018). Online tools for data collection. In Alexander, D.T. & Xavier, S.A. (Ed) Education 5.0: Perspectives & previews (pp. 129-132), Fr. Bonhoure Centre for Research, Muthulecthumi Press.

Razami, H. H., & Ibrahim, R. (2021). Distance Education during COVID-19 pandemic: The perceptions and preference of university students in Malaysia towards online learning. *International Journal of Advanced Computer Science and Applications*, *12*(4).

Surani, D., & Hamidah, H. (2020). Students Perceptions in Online Class Learning During the COVID-19 Pandemic. *International Journal on Advanced Science, Education, and Religion*, *3*(3), 83-95.

6

A Pocket Book for Environmental Quality Index

[1] Shawal Sahid Hamid @ Hussain, [2] Noorliana Safian, [3] Nur Khairunnisa Liyana Ahmad

Faculty of Administrative Science & Policy Studies
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] shawalhussain@uitm.edu.my, [2] noorliana_safian@uitm.edu.my, [3] nisaliyana170498@gmail.com

ABSTRACT

Environmental Quality Index (EQI) represents four domains of the environment; air, water, noise and light. This index is significant in translating a wide variety of environmental indicators into a simple system that can easily be communicated. Based on a survey carried out to 70 students of EVA631 with regards to their learning difficulties, it was found out that, one of the major problems in their learning is difficulties to access various environmental indexes during classes. Furthermore, to date, there is an absence of a pocket book that compiles the index of all the quality domains. Therefore, the aim of this pocket book is to provide an easy quick reference to the students in referring to various EQI. In order to better understand students' perceptions towards this pocket book, a survey was carried out towards the 70 students of EVA631 and the findings reveal that, overall, students were satisfied with the content of the pocket book. With this innovative idea, it is hoped that students will be able to be more focused on their learning especially in the era of online learning

Keywords**:** Environmental, quality, index, pocket book

INTRODUCTION

The use of effective teaching and learning materials (T&L) can make a teaching process and learning becomes exciting and attractive. According to Ahmad Zanzali & Daud (2010), variation in teaching aids are an important aspect to attract students and enhance their understanding during the teaching and learning process. A pocket book or a reference book is seen as one of the conventional methods of reference; however, the positive impact gained from the usage of handbook is undeniable. This handbook of Environmental Quality Index is intended to assist the students of EVA 631: Environmental Health and Security. This course is one of the compulsory courses of the Degree in Environmental Administration, University Technology MARA.

PROBLEM STATEMENT

A survey was carried out on 70 students of EVA631. This survey is intended to understand the problems faced by the students that hinder their learning process in class. The findings from the survey reveals that the major problem students faced in class was difficulties to access various environmental indices (Table 1). Students need to browse through different websites of the Department of Environment (DOE) and Department of Occupational Safety and Health (DOSH) each time they need relevant information pertaining to the issues of environmental quality. With this amount of feedback from the students, this pocket book was then developed.

Table 1
Student learning problem in class

	Items	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean Score
1	Does EVA631 subject need some form of practical training outside of class?	60	10	0	0	0	4.68
2	Do you face difficulties in accessing any environmental index?	68	2	0	0	0	4.97
3	Do you need fieldwork assignments to better understand the subject of EVA631?	56	4	10	0	0	4.86
4	Do you find it difficult to find EVA631 reference materials in the market?	52	19	8	0	0	4.84
5	Do you find it difficult to understand the syllabus of EVA631?	42	8	10	0	0	4.76

LITERATURE REVIEW

Basically, the content of this book mainly focused on Environmental Quality Standard (EQS). Environmental Quality Standard (EQS) is a concept for which there is no uniform definition in the legislative systems around the world. The term EQS is mostly used in Europe, while in the United States and Canada the terms Ambient Water Quality Criteria and Water Quality Guidelines, respectively, are used. In any case, when set in legislation, they are legally binding limits and are translated into concentrations of individual substances. EQS is an environmental medium quality standard for specific substances, which sets concentration thresholds below which no adverse impact on the medium occurs, and which takes explicit account of available dilution at different discharge locations (P. Whitehouse 2001).

A World Health Organization (WHO) report states that in 2012, seven million deaths were caused by air pollution worldwide (WHO, 2014). Studies have shown that fine particulate pollution (PM2.5) is highly correlated with population mortality and morbidity (Shen et al., 2017). The AQI is a dimensionless index that quantitatively describes the status of air quality. The sub-AQI of the six criteria pollutants (PM2.5, PM10, SO2, CO, NO2, and O3) were first calculated with the observation concentrations (Kaijie Xu et al., 2020).

Initially, WQI was developed by Horton (1965) in United States by selecting 10 most commonly used water quality variables like dissolved oxygen (DO), pH, coliforms, specific conductance, alkalinity and chloride etc. and has been widely applied and accepted in European, African and Asian countries. The assigned weight reflects the significance of a parameter for a particular use and has considerable impact on the index. Furthermore, a new WQI similar to Horton's index has also been developed by the group of Brown in 1970, which was based on weights to individual parameters. Recently, many modifications have been considered for the WQI concept through various scientists and experts.

MATERIALS AND METHODS

According to Sabitha Marican (2006), survey questionnaires that have reliability of greater than 0.7 can be used as a measurement item in a study. The analysis was performed using Cronbach's Alpha from the Statistical Package for the social science (SPSS) software. A survey was conducted to 70 students of EVA 631. This survey is conducted in order to capture the first hand perception towards this book after 3 months of usage. Likert scale format was used in the questionnaire 1 up to 5 (1 = strongly disagree and 5 = strongly agree). The list of items are as follows (Table 2):

Table 2
List of questionnaire items

Item Number	Questions
1.	This book contains the aspects of knowledge I need
2.	The facts in this book are accurate
3.	The language used is easy to understand
4.	The front page of the book is interesting and creative
5.	The organisation of this book is clear and systematic
6.	Text integration and graphic used in this book is appropriate in conveying information
7.	I am satisfied with the book

RESULTS AND DISCUSSION

In general, the students had positive perception towards the content of the book with the mean of 4.54 (Table 3). However, there were three students who had neutral feelings on the content of the handbook. The majority of them strongly agreed that the facts in this book were accurate with the mean score of 4.92. Moreover, they agreed that the use of language was easy to understand with a mean score of 4.38. They also agreed that the front page of the book was interesting and creative with a mean score of 4.64. However, there were four students who had a neutral feeling about this. In terms of organisation of the book, they agreed that the organisation of the book was clear and systematic. They also agreed that the text integration and the use of graphics in the book was appropriate with a mean score of 4.92. Overall, a mean score 4.96 was observed on the overall satisfaction towards the book.

Table 3
Findings of Mean Score

	Items	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Mean Score
1.	This book contains the aspects of knowledge I need.	63	3	4	0	0	4.54
2.	The facts in this book are accurate.	67	2	1	0	0	4.92
3.	The language used is easy to understand.	63	7	0	0	0	4.38
4.	The front page of the book is interesting and creative.	56	10	4	0	0	4.64
5.	The organisation of this book is clear and systematic.	68	2	0	0	0	4.96
6.	Text integration and graphics used in this book are	66	4	0	0	0	4.92

	Items	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Mean Score
	appropriate in conveying information.						
7.	I am satisfied with the book.	68	2	0	0	0	4.96

CONTRIBUTION AND USEFULNESS/ COMMERCIALISATION

This pocket book intended to assist the students of EVA 631: Environmental Health and Security subject. This pocket book is useful to the students as a quick and easy reference. Previously, students need to browse through different websites of the Department of Environment (DOE) and the Department of Occupational Safety and Health (DOSH) each time they need relevant information pertaining to the issues of environmental quality. This handbook is therefore appropriate in supporting students' learning and education development. Nevertheless, lecturers could also use this handbook as one of the teaching and learning strategies. This pocket book is prepared in two versions which are physical handbook and QR Code. A physical handbook is significant for easier concentration and information retention while the QR Code could provide students with easy access to the handbook. This book has been sold to the students at a price of RM15. Furthermore, this pocket book also is equipped with some infographics relevant to the context of the course. This infographic could further assist the students to better understand the Environmental Quality Index. Figure 2 displays a sample of the infographic.

NOVELTY

This product of innovation uses creative graphic materials to help the students and educators facilitate their teaching and learning. Since the market only uses Environmental Quality Index (EQI) by the Department of Occupational Safety and Health (DOSH) and Department Of the Environment (DOE) website, this pocket book will be able to create a more interactive learning in class. As part of Sustainable Development Goals (SDGs), this product is environmentally friendly by going paperless, that is by using a QR Code. Since the education system now focuses on online learning due to the impact of the COVID-19, this pocket book arrives just in time to create an accessible and sustainable learning process.

CONCLUSION

A pocket Environmental Quality Index (EQI) provides a good opportunity to its focus group. This book aims to reduce students' difficulties in learning, particularly on the Environmental Administration subject. With a huge information overload which involves tonnes of facts and data, this handbook possesses a great potential to assist educators and learners in their learning process.

ACKNOWLEDGEMENTS

The authors thank and appreciate all the participants in this study.

REFERENCES

Ahmad Zanzali. (2010). Penggunaan Bahan Bantu Mengajar Di Kalangan Guru Pelatih Yang Mengajar Mata Pelajaran Matematik. Skudai: Universiti Teknologi Malaysia

Brown, R.M., McClelland, N.I., Deininger, R.A. and Tozer, R.G., "Water quality index-do we dare?", Water Sewage Works, 117(10). 339-343. 1970.

CEN. (2003). Air Quality – Determination of odour concentration by dynamic olfactometry. British Standard EN13725. Brussels: European Committee for Standardization

G. Grimvall, A˚ . Holmgren, P. Jacobsson, T. Thede´en, Risks in Technological Systems,

Springer, New York, 2010.

Horton, R.K., "An index number system for rating water quality", J. Water Pollu. Cont. Fed., 37(3). 300-305. 1965.

Illuminating Engineering Society of North America (IES), IES TM-18-08 Light and human health: an overview of the impact of optical radiation on visual, circadian, neuroendocrine and neurobehavioral responses, 1st ed. New York, New York, USA: IES, 2008.

Kaijie Xu, Kangping Cui, Li-Hao Young, Ya-Fen Wang, Yen-Kung Hsieh, Shun Wan,Jiajia Zhang.(2020). Air Quality Index, Indicatory Air Pollutants and Impact of COVID-19 Event on the Air Quality near Central China, 1204 (20)–1221.2020.

K. Kaida, M. Takahashi, T. Haratani, Y. Otsuka, K. Fukasawa, and A. Nakata, "Indoor exposure to natural bright light prevents afternoon sleepiness", Sleep, vol. 29, no. 4, pp. 462-469, 2006.

J. A. Veitch, Tiller, D. K., Pasini, I., Arsenault, C. D., Jaekel, R. R., & Svec, J. M. (2002). The effects of fluorescent lighting filters on skin appearance and visual performance. Journal of the Illuminating Engineering Society, 31(1), 40-60.

Misselbrook, T.H., Clarkson, C.R. and Pain, B.F. (1993). Relationship between concentration and intensity of odours for pig slurry and broiler houses. Journal of Agricultural Engineering Research 55: 163 – 169.

Nicell, J.A. (2009). Assessment and regulation of odour impacts. Atmospheric Environment 43: 196 – 206.

Nimmermark, S. (2001). Use of electronic noses for detectin of odour from animal production facilities: a review.Water Science and Technology 44: 33 – 41.

P. Whitehouse. *Measures for protecting water quality: current approaches and future developments*, Ecotoxicol. Environ. Saf. 50 (2) (2001) 115-126.

P G Abbott and P M Nelson.(2002). Converting the UK traffic noise index LA10,18h to EU

noise indices for noise mapping.The National Assembly for Wales, The Scottish.

Sabitha, M. (2006). Penyelidikan sains sosial: pendekatan pragmatik. Batu Caves: edusystem.

Stuetz, R. and Frenchen, F. (2001). Odour in wastewater treatment: measurement, modelling and control. London: IWA Publishing.

USEPA, 2006. Guidelines for the Reporting of Daily Air Quality e the Air Quality Index (AQI).

USEPA, 2009. Air Quality Index, A Guide to Air Quality and Your Health.

W. Czernuszenko, P.M. Rowinski, Water Quality Standards and Dispersion of Pollutants, Springer, New York, 2005.

7

Addressing Communication Issues Through Interactive Digital Advocacy Actions

Noor Hilmi Mohd Johan
Fakulti Komunikasi dan Pengajian Media
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
haihilmi@uitm.edu.my

Ts Nurul Aishah Ab Raman
Fakulti Komunikasi dan Pengajian Media
Universiti Teknologi MARA
Shah Alam, Malaysia
aishah7502@uitm.edu.my

Isma Zuriyya Ismail
Fakulti Komunikasi dan Pengajian Media
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
isma2740@uitm.edu.my

ABSTRACT

Abuse and misinformation in the digital realm have been on the rise in recent years, either intentionally or unintentionally. Users either unknowingly contribute to these causes or fall victim to social media. Engaging the public, particularly secondary school students is vital in shaping their minds about the potential abuse and hazardous environment when logging onto social media. Students and academicians from the Faculty of Communication and Media Studies (FCMS) of Universiti Teknologi MARA UiTM Cawangan Negeri Sembilan have embarked on an advocacy action aiming to introduce and deter abuse on social media through the implementation of the digital SULAM programme. These programmes are 'Speak Out – How Do I Get Out of It', 'Facts Not Fake' and 'Kopi Silang Kaki: How to Safeguard Your Reputation'.

Keywords: media law, advocacy actions, communication, digital interaction, online game

INTRODUCTION

Usage of social media is significantly on the rise. According to the United States think tank Pew Research Centre, the number of social media users, particularly internet users, is on the rise. Perrin (2015) highlights through his research that the rises of social media users have affected people's opinions on work, politics, health, civil life and many more. Social media exposure and interaction have influenced people, including youth, to engage in social and political debate. Henceforth, with the implementation of the nationwide quarantine of Movement Control Order (MCO), Malaysian youth channel their attention to social media for an avenue of information and entertainment (Syuhaidah & Syuhaidi, 2021; Khairulnissa et al., 2021).

Understanding that social media has been a focus of attention, several groups of students from FCMS UiTM Cawangan Negeri Sembilan Kampus Rembau have initiated and conducted several interactive digital advocacy actions through Service Learning Malaysia – University for Society (SULAM). This SULAM project aims to introduce and educate secondary school students in a cyber-interactive environment regarding potential abuse and danger when using social media. The organisers came up with several online games and interactive communication sessions to inform and educate their target audiences.

DESIGN AND DEVELOPMENT

The ever-changing landscape of social media in Malaysia has profoundly shaped behaviour and perception when issues emerge on social media. The SULAM digital interactive advocacy action under the FCMS course subject Media Law, Ethics and Regulations (COM540) aims to educate and promote a variety of legal communication issues in Malaysia. Since 2020, this SULAM project has catered to topics such as cyber bullying, fake news, and defamation. Through this approach, UiTM students will conduct a variation of digital interactive games either from Quizizz, online anonymous confession, online role play, Kahoot!, Spyfall, Jeopardy, and short public service announcement (PSA) videos.

The incorporation of online game variability and interactive communication between organiser and secondary school student can fundamentally shape their opinion and understanding of the topic. A study that has been done in South Korea illustrates that technological changes in social media and the internet have created an increasing convenience for their users' interactions whereby they will be more attracted and concentrate upon their content (Chan-Olmsted et al., 2013). The outcome of this study directly supports the methods that have been used in this SULAM programme in which participants have a better understanding when they attend interactive online campaigns through social media.

Implementation of this SULAM project by engaging secondary school students across Malaysia in utilising online games and interactive communication sessions has provided a very positive and sound outcome. Not only has it given a proper exposure and understanding of legal communication issues in Malaysia, but to a certain extent, it can also be used as a self-tool kit in which participants can identify themselves as either having fallen victims to cyber harassment on social media or being complicit in committing one. This unique attribute of interaction and engagement makes participants value and prefer collaborative, active, and technology-rich learning compared to conventional ways of delivering knowledge (Bekebrede, 2011).

NOVELTY

Students were not only involved with engaging interactive games set up by organisers but also had the opportunity to review graphic posters, short videos and webinars when participating in this programme. Organisers will create their respective production house and develop their organising committee. From here, they will coordinate their tasks in producing relevant content and work flow for SULAM's main event. Students will have a consultation with their advisors on choosing an appropriate case study or reviewing their scripts. This is essential to ensure the content that has been produced can be easily understood and engaging for the participants.

Constant feedback and commenting by organisers during the online game sessions replicate the environment of an actual e-sport tournament. Participants experience thrills and excitement as their attention is drawn to an appealing interface and lively music, but it also draws out their competitive traits to compete and try something new. Past studies carried out by different researchers have highlighted the impact of lucid platforms on improving students' ability to grasp new information and develop their work skills (Campillo-Ferrer et al., 2020; Nah et al., 2014; Kiryakova et al., 2014). This demonstrates how an innovation in the teaching and learning process through the integration of gamification can improve students' literacy and interest in embracing the topic at hand. This

unconventional approach to education through the gamification process, as shown in various SULAM projects, is capable of producing content that can simplify the complex topic for better understanding.

Figure 1 Awards and accolades from various innovations and invention competitions from 2020 to 2022.

CONCLUSION

For over the past two years, from 2020 until now, there have been five COM540's SULAM projects which advocate and highlight topics pertaining to media law and communication issues. These projects have been recognised by winning several awards in innovation and invention design competitions. 'Speak Out – How Do I Get Out of It' has won a gold medal in the 5th i-IDeA 2020, a silver award in the 10th INDES 2021 for 'Facts Not Fake' and a bronze award together with the most likeable video presentation award for 'Kopi Silang Kaki: How To Safeguard Your Reputation' in VI-BiiDE 2022.

These awards and accolades demonstrate that SULAM's advocacy action project has been recognised for its accomplishments in unconventional educational approaches. Participants not only enjoyed the content but to some extent, understood and comprehended the value that had been implemented during the session. It has great potential for monetization as organisers can charge a fee for any programme that uses the same methodology. A variety of complex and difficult topics can be made easily accessible and understandable by replicating and implementing this SULAM's methodology.

REFERENCES

Bekebrede, G., Warmelink, H. J. G., & Mayer, I. S. (2011). Reviewing the need for gaming in education to accommodate the net generation. *Computers & Education*, *57*(2), 1521-1529.

Campillo-Ferrer, J. M., Miralles-Martínez, P., & Sánchez-Ibáñez, R. (2020). Gamification in higher education: Impact on student motivation and the acquisition of social and civic key competencies. *Sustainability*, *12*(12), 4822.

Chan-Olmsted, S. M., Cho, M., & Lee, S. (2013). User perceptions of social media: A comparative study of perceived characteristics and user profiles by social media. *Online journal of communication and media technologies*, *3*(4), 149-178.

Khairulnissa, A. K., Krisnan, L., Kaundan, M. K., & Aziz, A. A. (2021). Emerging themes in Facebook and Twitter before Movement Control Order (MCO) in Malaysia. *SEARCH Journal of Media and Communication Research*, *13*(1), 47-60.

Kiryakova, G., Angelova, N., & Yordanova, L. (2014). Gamification in education. In *Proceedings of 9th International Balkan Education and Science Conference*. Dubrovnik, Croatia.

Nah, F. F. H., Zeng, Q., Telaprolu, V. R., Ayyappa, A. P., & Eschenbrenner, B. (2014). Gamification of education: a review of literature. In *International conference on hci in business* (pp. 401-409).

Perrin, A. (2015). Social media usage. *Pew research center*, *125*, 52-68.

Syuhaidah, N. A., & Syuhaidi, M. A. B. (2021). Social media during the movement control order (mco) period in malaysia: Uses and effects. *International Journal of Academic Research in Business and Social Scienzes*, *11*(9), 49-56.

8

The Fun of Learning: OV Game as a Teaching Tool

[1] Rafizan Abdul Razak, [2] Akma Hidayu Dol @ Abdul Wahid, [3] Musliha Musman

Faculty of Accountancy
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] rafizan@uitm.edu.my, [2] hidayu346@uitm.edu.my, [3] musliha5468@uitm.edu.my

ABSTRACT

Students nowadays are actively engaged with enjoyable and interesting learning methods. As a result, education must be revised to embrace new methodologies in order to satisfy these new demands and standards while also improving students' learning processes. Currently, learning games are the most popular method of learning and it has become an essential part of the educational system. Therefore, one of the management accounting topics, overhead, is supplemented with a learning game known as the OV game. The OV game is designed to make students enjoy and feel at ease while completing the overhead analysis sheet. The OV game was created from the observation that the topic of overhead is one of the most challenging in management accounting, and that students found it particularly difficult to comprehend while preparing an overhead analysis sheet. Using a real-world business scenario, the students need to prepare an overhead analysis sheet. The game is packed with interesting, colourful images that keep students easily engaged in completing the task of preparing an overhead analysis sheet. This game is designed to provide an alternative to the traditional method of discussing previous exam questions.

Keywords: Engagement, Game-Based Learning, Motivation, Performance, OV Game

INTRODUCTION

Normally, students learned costing for overhead through formal lectures, tutorial, group discussions and group projects in a cost and management accounting course at diploma or degree levels. It is quite challenging to develop suitable games that can be used to deliver the required knowledge as the content and syllabus for this topic is quite technical. However, due to the demand and changes in the learning and education environment today, innovation is compulsory to stay relevant and able to engage with students. Therefore, the OV game is introduced to help students to learn and understand how to learn the overhead topic in an easy and fun way. The objective of OV Game are as follow:

a. To enable students to identify overhead costs incurred in manufacturing companies, a cost centre and an appropriate basis used to apportion the overhead cost

b. To calculate the overhead absorption rate (OAR)

c. To use real business settings or manufacturing activity as a case study to help the student have a better understanding of the overhead costing process

d. To provide learning activities which can be accessed online.

DESIGN AND DEVELOPMENT OF THE PRODUCT

The content selection

Generally, a basic cost and management accounting course at diploma or degree level consists of seven or eight main topics such as material costing, labour costing, overhead, services costing, job or batch costing, marginal and absorption costing. For the purpose of this game, we choose one sub topic which is Costing for Overhead. This topic was selected because it involved a lot of technical aspects and procedures to allocate the overhead cost to the cost object. The nature of overhead cost where indirect costs make the allocation process seem tedious and required analytical thinking. Therefore, we choose a new approach to deliver this knowledge to enhance student understanding in this topic.

The application of instructional design model

In developing the OV Game, we are based on Motivation Theory in which it must contain three essential elements, namely, need, motive or goal that triggers action, a selection process that directs the choice of action and the intensity of effort that is applied to the chosen action. In this context, motivation governs behaviour, attitude and performance, selection, direction and level of effort (Rao, 2016). Thus, underlying this theory we construct the OV Game.

The following section describes the instruction to play OV Game.

Students can choose to play this game individually or in a group of 3 to 4 persons using Google Form. The time given to complete this game is 1 hour. There are four tasks given to be completed by the students as shown below:

Task one:
Each individual/group must read the case study and then identify the relevant costs item that might arise in each cost centre (pictures). In each cost centre, there are about 5 to 11 items (small pictures) that represent various types of costs. they are required to choose and tick the relevant item (picture) that might arise in the above cost centre. Each picture can be used more than once in each cost centre if necessary.

Task Two:
Next, the student must match the item (small pictures) with suitable overhead costs that can be accumulated to the cost centre.

Task Three:
Each group/individual must calculate the costs incurred in each cost centre in OAS Template by choosing the appropriate basis available. At this stage students should be able to choose an appropriate basis based on cause-and-effect relationship to allocate the overhead costs to the cost centre. They must upload and submit the answer via Google Form.

Task Four:
For the final task, each group/ individual must compute the overhead absorption rate in CC1, CC2, CC3 and CC4 using an appropriate basis.

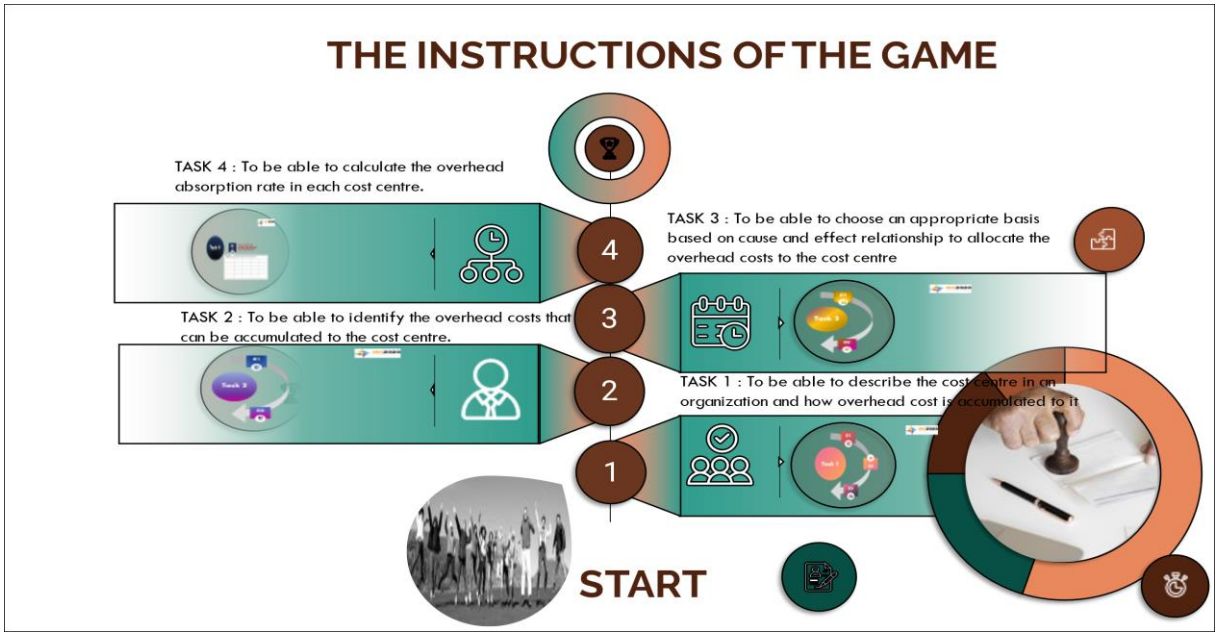


Figure 1 Instruction to Play OV Game

The application of learning theories

This game applied two common game-based learning theories which are the Goal-Setting Theory (Landers et al., 2015) and Self-Determination Theory (SDT) in Ryan & Deci (2000). Based on the Goal -Setting Theory, there are four factors that connect the goals situated with the individual's performance. The individuals' commitment towards their goal; the response or reaction they receive for their work and effort; the difficulty of the tasks they perform; and the situational constraints that relate to their tasks, such as time limit or role overload (Locke & Latham, 2002). In this framework, the goal should be straightforward, objective, specific, make sense, and not too tricky to effectively increase students' performance and engagement. On the other hand, Ryan & Deci (2000) stated that SDT posits around three basic psychological needs that all individuals have and strive to fulfil, relatedness, autonomy, and competence. These needs are connected and enhance intrinsic motivations because of interest and enjoyment, and extrinsic motivation for example people willing to participate due to a reward or incentive.

Application(s) to develop the innovation

Initially this game was developed by using laminated A4/A3 paper where the student can play it in face-to-face class for Semester March- July 2020. However, due to pandemic COVID-19 and the implementation of Open Distance Learning (ODL) in all public university in Malaysia, it gives us an opportunity to explore numerous applications which are available to be used such as Socrative, Quizizz, Google Forms, Brains cape and others. After considering all options including the cost, time and student's accessibility in learning activity therefore, we design the instructional model for OV game via Google Form for Semester October 2020- February 2021.

The cost and time spent

Overall, it took about one month to develop the game. The first step was to find the appropriate business model to be used as a case study, and it was quite time consuming. It took about one to two weeks to finalise the business to ensure the suitability of learning activity. Next, the suitable cost centre and overhead cost pictures for the business were chosen and created. Finally the editing and printing process were done. The total cost incurred was about RM200 which included printed coloured material, laminated material and a bag to make it ready to be used in the classroom. In addition to the printed version of the OV Game, the online version of OV Game via Google Form was also created where the students can access it during the ODL.

The features of the innovation

In this game the real world business setting pictures were used such as the cost centre in the Yakult manufacturing company which are available on websites. Previously, the students only referred to examination questions or text books to learn this topic in the classroom. Although the whole world was locked down due to the pandemic COVID-19, it does not stop the innovation to be created for sharing the knowledge with students. Other than that, an example of relevant overhead source documents was created such as electricity bill, plant floor area map, loan agreements, payment slip and others to help the students to identify and allocate it to an appropriate cost centre.

Accessibility of the innovation

The OV game can be accessed through Google Form link. The link was shared with students once they had completed the online formal lectures for the overhead topics. This game also can be played manually in the classroom using the printed version.

NOVELTY OF THE PRODUCT

The concept used is unique as it serves its own purpose to increase students' understanding in the overhead topic. The game uses a real-world business scenario that provides concrete applications to knowledge and skills learned in the classroom. Real business scenarios or examples help to stimulate critical /problem-solving skills as well as creativity skills of the students. Furthermore, the game is packed with interesting, colourful images that keep students easily engaged in completing the task of preparing an overhead analysis sheet. It starts with the easiest yet interesting phase which involves matching the pictures that represent the types of cost for five different cost centres and ends with the overhead analysis sheet, the hardest of all. This helps the students learn the game and keeps them engaged throughout their experience.

The originality

The OV game was initiated by the management accounting lecturer, Puan Rafizan Abdul Razak. Based on her vast experience and analysis of the students' academic results in the management accounting course, students were found not able to fully comprehend and prepare the overhead analysis sheet. Thus, it was perceived as one of the most challenging topics in management accounting. In 2020, the OV game was developed as a "board game" using laminated A4/A3 paper. The game was awarded a silver medal in an International Event -Virtual Innovation Competition (VIC2020). The implementation of ODL has led to the creation and development of the OV game using Google Form that suits the needs ODL. In 2021, the OV game was awarded a gold medal in the Accounting Education Competition (AEC2021).

Figure 2 Certificate of Awards

The newness or/an uniqueness of the product

The game is an invention approach that was developed based on a real-world business scenario and uses graphics to grab students' attention and encourage them to prepare an overhead analysis sheet. This practice is aimed to strengthen students' knowledge of the subject being learned on the overhead topic as compared to the traditional method, which entails discussing the exercise that frequently covers past exam questions.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

The game can be used as a supplementary teaching tool and it is simple to use for accounting educators. It serves as an addition to the present textbook to enhance students' understanding of the subject matter.

REFERENCES

Rao, M. B. (2016). Motivation of teachers in higher education. *Journal of Applied Research in Higher Education*, *8*(4), 469-488.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54-67.

Landers, R. N., Bauer, K. N., Callan, R. C., & Armstrong, M. B. (2015). Psychological theory and the gamification of learning. In *Gamification in Education and Business* (pp. 165-186). Springer, International Publishing. https://doi.org/10.1007/978-3-319-10208-5_9

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, *57*(9), 705.

9

The Used of an Animated Timeline Infographic in Accounting Subject for Non-Accounting Students

Siti Hawa Shuid
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
hawashuid@uitm.edu.my

ABSTRACT

Accounting classes are typically challenging for non-accounting students, particularly when it comes to creating the T-account. To facilitate learning for an accounting course given at UiTM Cawangan Negeri Sembilan, an animated timeline infographic in accounting (TIA) was created. The image and text from the animated timeline infographic could assist non-accounting students in calculating cash flows without having to create T-accounts.

Keywords: Infographic, Non-accounting student, Timeline infographic, Statement of cash flows

INTRODUCTION

The dynamic and competitive environment in the economy demands accounting knowledge even from non-accounting students. Many accounting subjects have been offered by many universities and colleges to accommodate this need. Previous studies found that non-accounting students positively perceived the accounting course as critically relevant to their future jobs (Malgwi, 2006; Geiger & Ogilby, 2000).

The Financial Accounting and Reporting course is mandatory for all Bachelor of Corporate Administration students enrolled in Semester Four at UiTM Cawangan Negeri Sembilan. One of the learning outcomes of this subject is to prepare the Statement of Cash Flows. The Statement of Cash Flows is one of the financial statements issued by the company and shows how much money is coming into and going out of the business. The students are expected to compute cash flows from three different activities: operating activities, investing activities, and financing activities by preparing T-accounts or any other approach.

The challenge occurs when students find it difficult to prepare a Statement of Cash Flows because they do not comprehend the fundamental concepts involved in preparing T-accounts. Given the lack of engaging face-to-face instruction during the COVID-19 pandemic, they had difficulties understanding the accounting terms and business activities. Many non-accounting students still consider accounting subjects too dull, boring, and challenging to understand (Malgwi, 2006; Khalid et al., 2020), which is usually associated with poor academic performance (Khalid et al., 2020). This perception tends to become more obvious toward the end of the semester (Geiger & Ogilby, 2000).

On the basis of this premise, an animated timeline infographic called Timeline Infographic in Accounting (TIA) for non-accounting students was developed with the following objectives:

a. To improve the students' level of understanding of calculating the cash flow from different activities.

b. To expose non-accounting students to accounting subjects using an engaging teaching style.

c. To assist students, prepare a Statement of Cash Flows without having to prepare T-accounts.

Lois et al. (2017) point out the need for effective delivery of the course in order to make the accounting subjects more real and relevant and thus promote the positive motivation of the non-accounting students. One effective approach could be through animated and interactive infographics.

DESIGN AND DEVELOPMENT OF THE PRODUCT

This study employs a dual-coding theory which asserts that human memory has two coding systems for each piece of information; verbally presented narration and visually presented animation (Clark & Paivio, 1991). This study also makes use of a cognitive load theory that has been developed by John Sweller, which makes the assumption that working memory's capacity and length are constrained (Sweller et al., 2011). The learner's attention is fragmented because certain pieces of information are given more consideration while other pieces of information are disregarded. As a result, the working memory will experience a significant cognitive burden, which will inhibit learning. In light of these two theories, an animated infographic is assumed to present the information to the students through graphics and narration in an attractive way.

The animated timeline infographics (TIA) are built based on the requirement for students to apply their financial accounting and reporting knowledge in the preparation of the Statement of Cash Flows. In this innovation approach, learners are expected to calculate the cash flows of three different activities. This animated timeline infographic was developed using MS PowerPoint. The features of the animated timeline infographic might include the following: First, the date of transaction and financial year end. Second, the timeline will include a brief description of the relevant business activities. Third, a small icon or graphic is included above or under the description to represent the business activities. Four, a figure or amount, is included as an example of how to calculate the cash flows for a specific activity.

The following are the screenshots of the animated timeline infographics developed using MS PowerPoint.

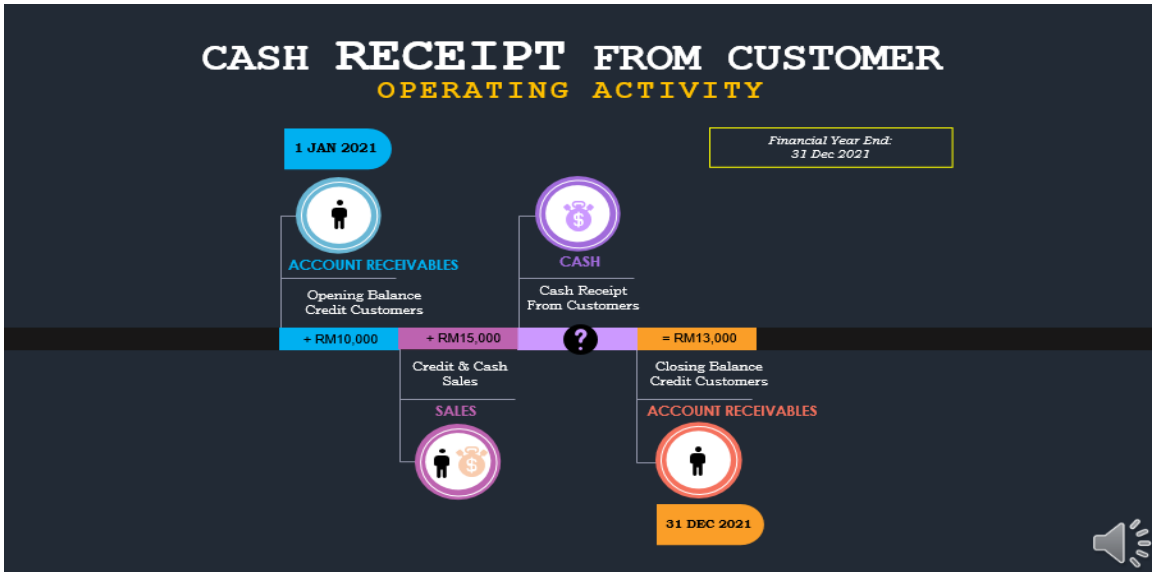


Figure 1 Screenshot of the animated timeline infographic on cash flow from customer

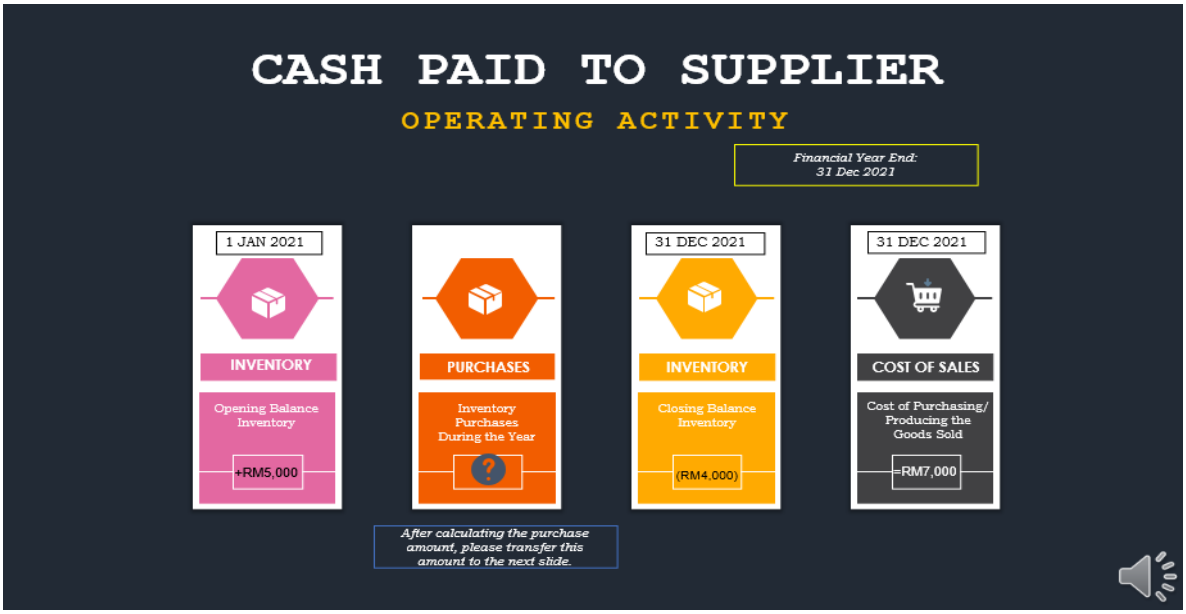


Figure 2 Screenshot of the animated timeline infographic on cash flow to supplier

The student will be able to visualise company activities using an infographic timeline quickly and easily with the aid of this animation timeline. Combining an infographic with a timeline for teaching accounting to non-accounting students may have benefits in terms of keeping the students' attention throughout the infographic by choosing a brilliant colour. Infographics are useful because they can help students study more effectively (Mahmoudi et al., 2017). Interactive infographics are more effective than static infographics in improving students' academic achievement (Sonay & Akilli, 2014; Ismaeel & Al Mulhim, 2021). The use of an interactive infographic allowed the students to read with greater cognitive effort (Sonay & Akilli, 2014). Additionally, the infographic includes more relevant data that encourages students to focus more intently on the offered learning material (Ismaeel & Al Mulhim, 2021). Hassan (2021) compares the use of text-only, static infographics, and animated infographics in a learning process. The findings for information perception and retention were better with animated infographics. While the text-only strategy yielded lower levels of understanding and memory retention, static infographics have produced outcomes that are comparable and scored at the second level.

NOVELTY OF THE PRODUCT

Non-accounting students will be able to get the benefits from this animated timeline infographic (TIA) because it will help them to learn faster about accounting subjects. Other than that, the students' recall is improved by using imagery with an animated timeline.

COMMERCIALISATION POTENTIAL OF THE PRODUCT (OTIONAL)

TIA could be sold as a module or as a mobile application.

The author presented this innovation in an Accounting Education Competition (AEC) 2021 in October 2021 and won gold for this innovation.

REFERENCES

Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review*, *3*(3), 149-210.

Geiger, M. A., & Ogilby, S. M. (2000). The first course in accounting: Students' perceptions and their effect on the decision to major in accounting. *Journal of Accounting Education*, *18*(2), 63-78.

Hassan, A.H.F. (2021). The effect of infographics on the cognitive skills development (perception and remembering information) of library and information science students in New Valley University: An experimental study. *Scientific Journal of Library, Archives and Information, Vol. 3, No. 7, 1-20.*

Ismaeel, D., & Al Mulhim, E. (2021). The influence of interactive and static infographics on the academic achievement of reflective and impulsive students. *Australasian Journal of Educational Technology*, *37*(1), 147-162.

Khalid, F.M., Rauf, F.H.A, Fauzi, M.A.M, Shafiee, M.A., Khan, N.H.H. & Rosmahadir, N.J. (2020). Factors influencing business students' academic performance in accounting. *Global Business & Management Research*, *12*(4).

Lois, P., Tabouratzi, E. & Makrygiannakis, G. (2017) Accounting Information Systems course: Perceptions of accounting and non-accounting students. *EuroMed Journal of Business Vol. 12* No. 3, 258-268.

Mahmoudi, M.T, Mojtahedi, S. & Shams, S. (2017). AR-Based valued-added visualization of infographic for enhancing learning performance. *Computer Applications in Engineering Education*, *25*(6), 1038-1052.

Malgwi, C. A. (2006). Discerning accounting and non-accounting students' perceptions in the first course in accounting as a proxy for separate course delivery. *Global Perspectives on Accounting Education*, *3*, 67.

Sonay, C. & Akilli, G.K. (2014). How visualization types affect learning processes in multimedia learning? *Proceedings of the International Conferences on Interfaces and Human Computer Interaction 2014, Game and Entertainment Technologies 2014 and Computer Graphics, Visualization, Computer Vision and Image Processing 2014 - Part of the Multi Conference on Computer Science and Information Systems, MCCSIS 2014*, pp. 99-106.

Sweller, J., Ayres, P., & Kalyuga, S. (2011). Measuring cognitive load. In J. Sweller, P. Ayres, & S. Kalyuga (Eds.), Cognitive load theory: explorations in the learning sciences, instructional systems and performance technologies (pp. 71–85). New York: Springer.

10

Industrial Relations (IR) Smart Gear

[1] Mahazril 'Aini Yaacob, [2] Nurul Hidayana Mohd Noor, [3] aidatul Akma Hamik

Faculty of Administrative Science & Policy Studies
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] mahazril@uitm.edu.my, [2] hidayana@uitm.edu.my, [3] saidatul477@uitm.edu.my

ABSTRACT

Industrial Relations (IR) Smart Gear is a graphic visual presentation that uses QR Code and mind-games in learning activities, consisting of quick and essential elements in the industrial relations field for students, lecturers, and practitioners. The primary purpose of this graphic visual is to enhance learners' basic knowledge of essential law terms and complicated jargons in industrial relations. The innovative ideas also serve as teaching and learning materials for lecturers and students. It also benefits Industrial Relations and Human Resources practitioners, which can be used as a quick reference guide. Furthermore, this innovative idea is hoped to make teaching and learning industrial relations courses easy and faster, and help memorising complicated jargons, especially during online distance learning in the era of the COVID-19 pandemic.

Keywords: industrial relations, QR code, teaching, learning, games

INTRODUCTION

A significant paradigm shift has been observed in education in general and industrial relations education in recent years. New concepts and themes have come up in industrial relations education. A study of Industrial Relations and employment law involves understanding the relationship between employees, employers, and the work environment. Therefore, practitioners and students must understand the subjects to prepare them for future employment. However, many students learning Industrial Relations (IR) sometimes have problems understanding the subject as it deals with complex jargon and law terms. Based on the survey conducted in 2020 among Universiti Teknologi MARA (UiTM) students taking the subjects, many claimed that they faced difficulties understanding topics such as Duties and Powers of Trade Union, History of IR, Powers of Director General, Trade Disputes and Provision of Employment Act. Relying upon the traditional textbooks to a certain extent made their learning complex, lengthy, dull, monotonous, and sleep-induced.

To overcome those problems, a plethora of research has urged educators to employ advanced and interactive teaching strategies to enhance students' participation, brainstorming, engagement, interaction, and others (Agbo et al., 2021; Chang & Yeh, 2021; Linsenmeyer, 2021). Realising the difficulties facing them and solutions to their problems, the idea of Industrial Relations (IR) Smart Gear is introduced with the following aims:

a. To facilitate students' learning activities by using the games and graphic visual presentation of information and knowledge related to the subjects in a simpler, quicker, and more effective way.

b. To ease classroom teaching and learning for students and educators in a more straightforward, easy, and fun way.

c. To help the students for easy memorising and understanding the subject through creative learning methods.

THE DESIGN AND DEVELOPMENT OF THE PRODUCT

Industrial Relations (IR) Smart Gear is designed by combining two learning methods comprising (1) games and (2) the application of QR Code technology to facilitate teaching and learning. The contents consist of the essential elements in the subject of industrial relations, with the simplified versions of five main areas of the topics: (1) Trade Union, (2) Trade Union Management and Constitutions, (3) Collective bargaining and agreement, (4) Trade Disputes and (5) Provision of Employment Act 1955). The idea of mind games, inspired by the Monopoly game, was designed to facilitate classroom teaching and learning for students and educators. Besides, the innovation also injects the element of technology usage through the graphic visual presentation using the QR Code, as shown in Figure 1. All the infographic data contents will be made available in the QR Code, which aims to facilitate the students' and educators' teaching and learning activities in a simpler, easier, and more fun way. It also aims to help the students quickly memorise and understand the subject through creative learning methods. In particular, we designed this gear based on three introductory provisions. First, the gear engages an audience. Second, the gear enables a clear understanding of the information. Third, the gear will help the viewer to remember the data presented. In developing this product, there is a minimum cost to prepare the games using sustainable materials such as paper and cardboard. It required almost two weeks to materialise the actual product. The output of the QR Code containing all the essential elements in the subject developed is as per Figure 1.

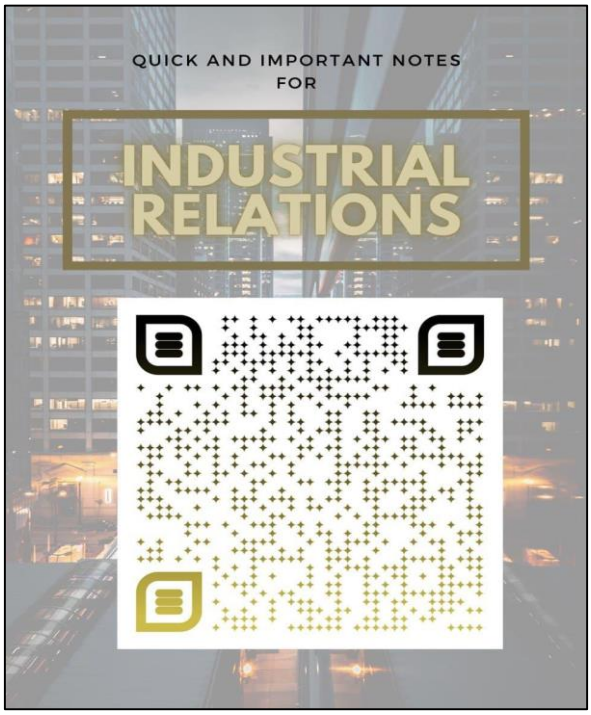


Figure 1 QR Code for Industrial Relations

THE NOVELTY OF THE PRODUCT

As there are limited learning materials and references related to IR in the market, this innovative product uses gaming tools, and creative and graphic materials to help students and educators facilitate their learning and teaching. Since the market only produced traditional books rather than innovative learning materials, this innovative idea that embeds games and technology elements to guarantee fun learning activities in class. Since the education system is now favouring online learning due to the impact of COVID-19, having the complete package of learning materials consisting of a QR Code and a set of educational games is a hope to make their learning process more accessible and sustainable. Moving towards sustainable development, this product is environmentally friendly as it is paperless, and is vital to embrace Industry 4.0.

Another aspect that makes the product novel is that it was developed based on the students' learning needs identified through a study. The study employed a quantitative method to obtain the findings. According to Machin et al. (2018), initial study sample size rules can be categorised into Flat and Stepped. A rule of thumb suggested for each situation is 30. Therefore, this study employed a questionnaire survey where the data were collected from 77 undergraduate students taking the Industrial Relations subject. They were chosen randomly from the Bachelor's programme at the Faculty of Administrative Science and Policy Studies, UiTM Negeri Sembilan, during the March-August 2021 semester. The online survey using Google Form was distributed to the respondents and the data obtained were analysed. The questions covered their feelings about the subject, their understanding of the subtopics and concepts, and their opinion to improve their motivation to learn the subject. The data were analysed using descriptive statistics; findings were then abstracted based on the data. The following section discusses the findings of the study.

Figure 2 revealed that the majority of the respondents were from the Bachelor of Administrative Science (AM228) programme (50%), followed by Bachelor of Corporate Administration (AM225) (26.3%) and Bachelor of Environmental Administration (AM226) (23.7%). Then, of the 77 users, 87% were female respondents, and the rest, 13%, were male respondents. The study also showed that most respondents were under 18-21 years (80.5%). Next, the main finding shows that most undergraduate UiTM students felt that the subject was neither easy nor difficult to understand. Also, many claimed that among the topics they faced difficulties to understand were Collective Bargaining and Agreement, Trade Unions, Trade Disputes, and Industrial Actions and the other topics. When further asked about 'What do you think is the most interesting solution for a better understanding of the subject?', most of them believed that mind-mapping notes and online games related to Industrial Relations subjects and brief notes were among the top exciting solutions to help them understand the subject. Many scholars firmly believe that infographics help interpret information comprehensively and effectively, enhancing students' understanding and academic performance (Mansour, 2021; Trubitsina, Volovatova, & Eremin, 2021).

Similarly, Nediger (2020) also states that infographics provide a broad view of the topic, help explain information in a precise and systematic way, give a less wordy presentation, and help raise awareness and attention on complex topics. Supporting students through exposure to infographics will prepare them for critical thinking and creativity (Khongprakob & Petsangsri, 2022). Thus, this study recommends that instructors continuously promote an interactive teaching approach to ensure the quality of IR teaching and learning. In preparing a better-quality instructor, interactive teaching method training must be implemented, and the need to review the current instructor training programme is further suggested. The result of this study can be used for the future development of learning and teaching practice at the tertiary level in Malaysia and similar to other developing countries.

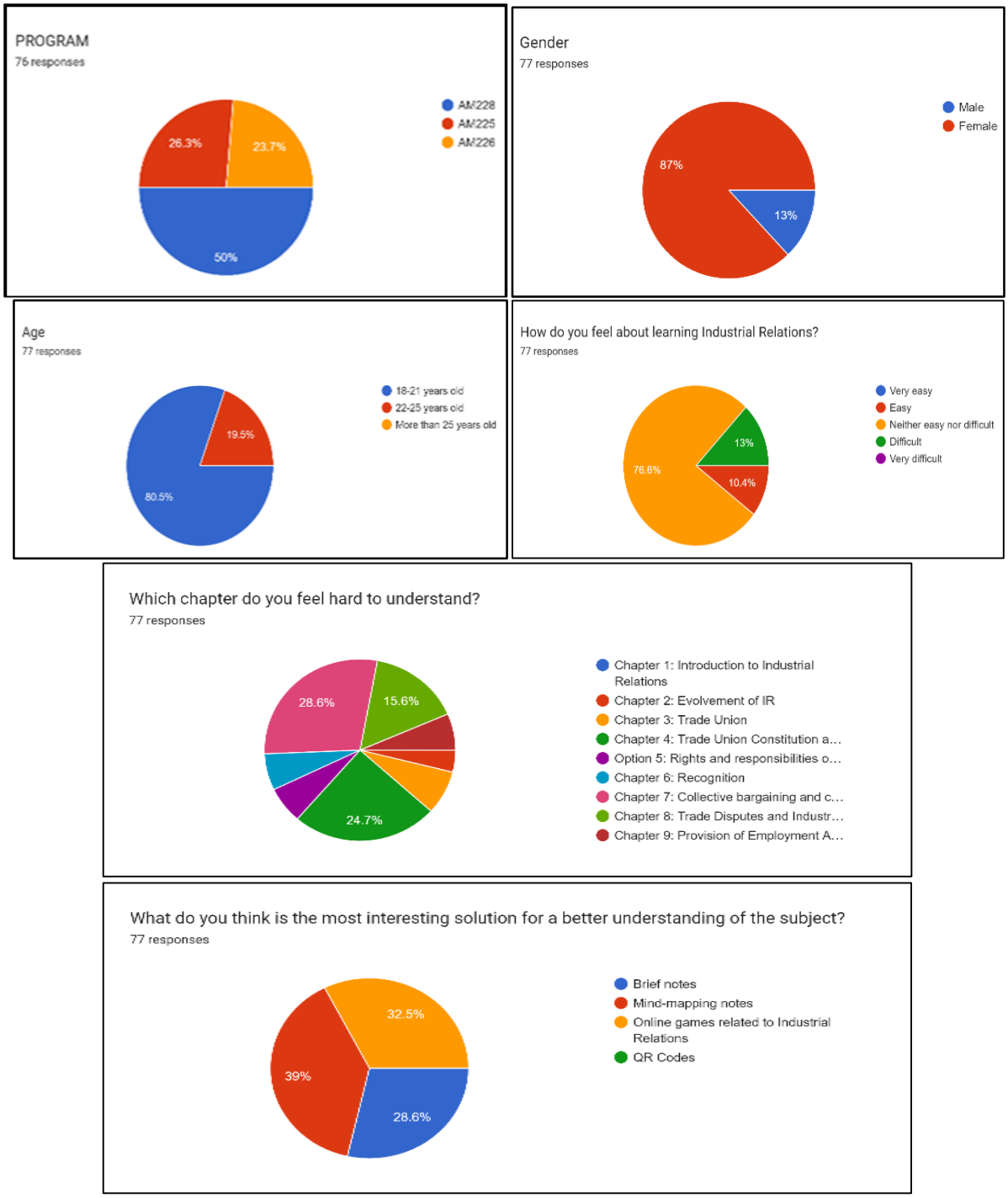


Figure 2 Summary of the survey results

COMMERCIALISATION POTENTIAL OF THE PRODUCT

This innovative product has the potential for commercialisation because it can be sold in the market to educators and students learning about Industrial Relations (IR). It has the potential to be converted into a 'teaching kit' that can be used by students and lecturers during their learning sessions and improve the classroom's learning activities. Currently, there is a lack of teaching products in the market focusing on games for this subject. On the other hand, it may benefit Industrial Relations and Human Resource practitioners since the innovation is a quick reference in their daily practice. It may also serve as the university's income generation if they manage to commercialise the product.

CONCLUSION

It is vital for all the parties who need to learn and know the Industrial relations system in Malaysia, specifically the students and educators, to understand the subject of Industrial Relations as it helps them in their employment. However, due to its complexity, many face difficulties understanding and memorising the subjects' information. The findings conclude that with the current trend, developing interactive learning tools is preferred to promote better understanding among students. Hence, the idea of Industrial Relations (IR) Smart Gear was created to benefit the users. It is a quick reference and learning tool, allowing for information and knowledge using games and visual graphics. Using graphical illustrations in learning activities helps people easily memorise and understand the contents (Mansour, 2021; Trubitsina et al., 2021). Besides, using games in learning may enable them to understand the subjects better as it involves participation in education. On the other hand, the QR Code serves as a quick reference for them whenever they want to refer to the contents and make their learning activities more accessible and faster.

REFERENCES

Agbo, F. J., Oyelere, S. S., Suhonen, J., & Laine, T. H. (2021). Co-design of mini-games for learning computational thinking in an online environment. *Education and Information Technologies*, *26*(5), 5815-5849. https://doi.org/10.1007/s10639-021-10515-1

Chang, W. L., & Yeh, Y. C. (2021). A blended design of game-based learning for motivation, knowledge sharing, and critical thinking enhancement. *Technology, Pedagogy, and Education*, *30*(2), 271-285. https://doi.org/10.1080/1475939X.2021.1885482

Khongprakob, N., & Petsangsri, S. (2022). Promoting Undergraduate Creativity and Positive Learning Outcomes through a Design Thinking and Visual Thinking Teaching Model. *Journal of Positive Psychology and Wellbeing*, *6*(1), 3809-3821.

Linsenmeyer, M. (2021). Brief activities: questioning, brainstorming, think-pair-share, jigsaw, and clinical case discussions. In *How-to guide for active learning* (pp. 39-66). Springer, Cham. https://doi.org/10.1007/978-3-030-62916-8_5

Machin, D., Campbell, M. J., Tan, S. B, Tan, S. H. (2018). *Sample sizes for clinical, laboratory, and epidemiology studies* (4th Ed.). John Wiley and Sons. Hoboken, New Jersey.

Mansour, E. (2021). Use of infographics as a technology-based information dissemination tool: the perspective of Egyptian public university libraries library staff. *Library Hi Tech*. https://doi.org/10.1108/LHT-03-2021-0084

Nediger, M. (2020). What is an Infographic. *Venngage [Online]* https://venngage. com/blog/what-is-an-infographic/(Oct 19, 2021).

Trubitsina, O., Volovatova, T., & Eremin, Y. V. (2021, October). Infographics as a Creative Design Method for Foreign Language Teaching. In *International Conference on Professional Culture of the Specialist of the Future* (pp. 985-999). Springer, Cham. https://doi: 10.1007/978-3-030-89708-6_78

11

Management of Text Conversations on Telegram during the COVID-19 Pandemic

Nuruul Hidayah Mansor
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
nuruul8413@uitm.edu.my

ABSTRACT

Conversations using a smartphone have now become a routine for everyone. It also becomes necessary for some official matters, including teaching and learning activities, because two-way communication and delivering information will be difficult without a smartphone. Telegram is one of the apps with unique features that allows instructors to start organising text conversations more systematically and effectively for communication purposes with students during the Open Distance Learning sessions. The instructor used multiple approaches to manage conversation using the features on Telegram such as creating and designing a bot menu, using comment bots, and running questions via poll in order to make the conversation process and records easier to manage and user-friendly.

Keywords: Open Distance Learning, Conversation, Text Chat Message and Telegram.

INTRODUCTION

For both lecturers and students, two-way communication during the process of teaching and learning is important. However, since the COVID-19 crisis, which made common face-to-face learning methods unworkable, it cannot be done. The impact of not being able to conduct face-to face health consultation service was also studied by Yu-Rui et al. (2020) where the service was replaced with smartphone-enabled consultation. Starting with the pandemic crisis, all lectures must be completed online since all lecturers are not permitted to be on campus, especially after the government announced a nationwide movement control order (MCO). This caused a variety of issues, including a limitation on common two-way face-to-face conversation between students and instructors.

In the twenty-first century, it is significant to utilise the latest technologies in teaching and learning using devices, systems, tools, and apps. Personal computers, including desktops, laptops, or tabs have become necessities in the teaching and learning process today for communication purposes, presentations, assignments and task completion. However, the limitation is that, compared to smartphones, most computers are not commonly used for chatting and conversational purposes. In addition, there are still a few students who only have smartphones.

Smartphones are one type of communication tool that has become increasingly important for everyone and all generations today. According to Morozov (2021), smartphones need to be used as an alternative in the educational process. For conversation and message purposes, users can download a variety of messaging apps such as Skype, WhatsApp, Telegram, Messenger, and many more. One of the common apps for two-way conversation used by instructors is WhatsApp, which is currently popular. However, it is challenging to start a message in WhatsApp due to the need to save the contact numbers and create an abundance of WhatsApp groups. Finally, the learning process has become less efficient because of the inability to properly organise and record numerous chat messages.

This paper aims to describe the management of chat messaging on Telegram that were applied in the teaching and learning during the COVID-19 pandemic. The objectives of using Telegram are as follows:

a. To facilitate the instructor to organise chat messages systematically.

b. To create an effective two-way conversation strategy between the instructor and students.

As a matter of fact, the instructor tries to find a new conversation platform that helps her to manage all the chat messages in a more practical, organised, constructed, and presentable way. Telegram seems to be almost similar to WhatsApp, which is currently very popular among users in the country. However, Telegram has unique features that makes it one of the best apps for daily conversation so that the instructor can structure conversation through the features provided. Telegram allows the instructor to have direct conversation with students, and can communicate at any time in a wide range of formats and sizes. Telegram also provides a variety of facilities that can help the instructor to organise chat messages, such as through comment bots, polls, and menu bots.

DESIGN AND DEVELOPMENT

The application to develop the innovation

The innovation was developed by using Telegram. Certain Telegram features were utilised to organise and control abundance of chat messages including (i) Bot Menu, (ii) Comments Bot, and (iii) Poll.

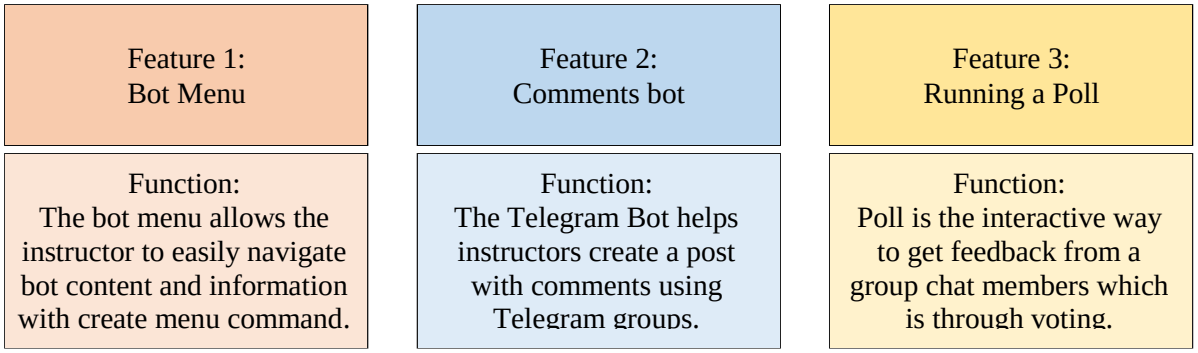


Figure 1 Telegram features to develop the teaching and learning innovation

Personal messages and group messages are both options for sending messages. However, many conversations or text messages will lead to confusion or missing information, particularly among students. As a result, the instructor managed chat messaging by implementing three techniques as shown in Figure 1; other than using the permission settings which are the basic way to manage and control messages in groups. Referring to Figure 2, the possibility of members to do certain things in group chatting will be modified by the instructor, such as replying to messages and changing information. This adjustment depends on time or the instructor's needs.

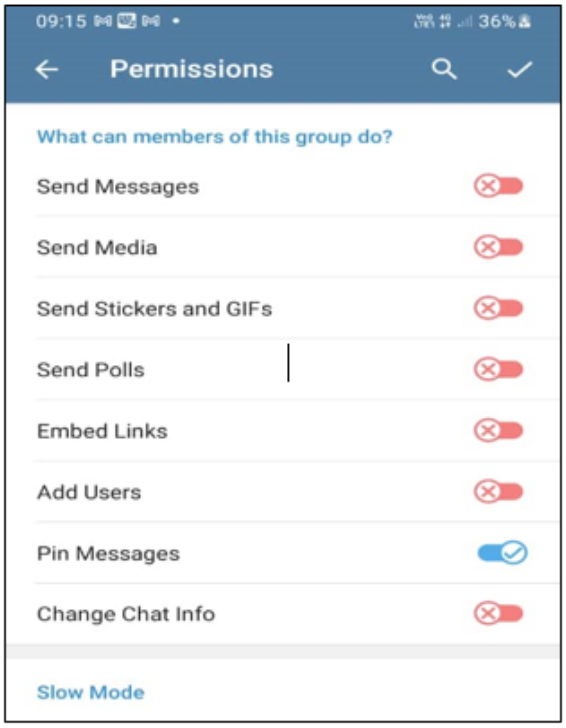


Figure 2 A screenshot of the display setting permission

The features of the innovation

A two-way conversation will commonly come to an end after the questions or the discussion has ended, as well as chat messaging. Old chat messages will be removed when phone storage is full or the smartphone needs to be reset again. With Telegram, the instructor managed chat messaging efficiently and systematically by using the Telegram features namely the comment bots and Bot Menu, depending on the time and the topic of conversation. While Poll, another Telegram feature, was utilised to reduce and control chat messaging.

Feature 1: Bot Menu	Feature 2: Comments bot	Feature 3: Running a Poll
Design: The instructor will create and design a Bot Menu for class group by creating an "ask question" box /folder for conversation purpose.	Design: The instructor will create a new post conversation with enabled comments for students' replies.	Design: The instructor will create conversation or question via poll and students need to reply or answer by voting to minimize text

Figure 3 Design of text conversation using Telegram features

Feature 1: Text conversations design using Bot Menu

Bots on Telegram are small programmes which allow us to respond to messages, be invited into groups, and be integrated with other programmes. It slightly differs from channels created in Telegram.

Channels are a form of one-way messaging where only administrators are able to post messages, but other users are not (Martim, 2015). However, when a bot is used in a channel, users can chat with the bot by using the bot menu.

The generated new bot menu, as referred to in Figure 4, allows the instructor to control a variety of materials more efficiently, including questions asked by students. Systematically, conversations such as making announcements to distribute materials to students, giving tasks to students, and others can be done through the Bot Menu just by using a smartphone. The instructor built the folder through creating a command and organized the folder through the configuration of the main menu provided by Telegram. Students just need to click the question box which has been prepared by the instructor when they want to ask or start a conversation. All the questions were kept in one folder and the instructor could access them again if needed. However, based on the instructor's experience, developers must be able to handle messages and instructions from bots' software programmes with care.

Figure 4 Sample of New Bot Menu designed by the instructor

Feature 2: Text conversations design using Comments Bot

Text conversation using the Comments Bots (refer to Figure 5) was used by instructors to ensure that text chat messages or discussions could be carried out better and more practically. This platform can encourage more formal conversation sessions between the instructor and students. It also helps to reduce the number of text messaging sent in common chat message groups or personal. The instructor initiated the conversation by using the Telegram Comment Bot, and then students could respond directly with their text for the purpose of conversation.

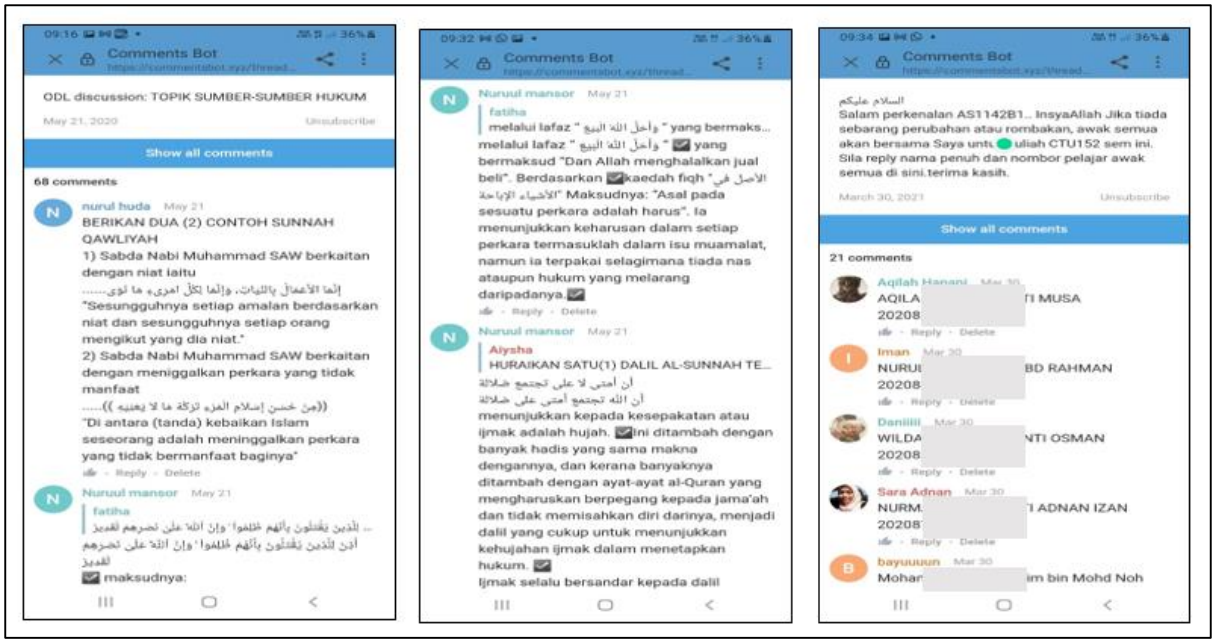


Figure 5 Sample of comments Bots design by instructor

Feature 2: Text conversations designed by using Poll

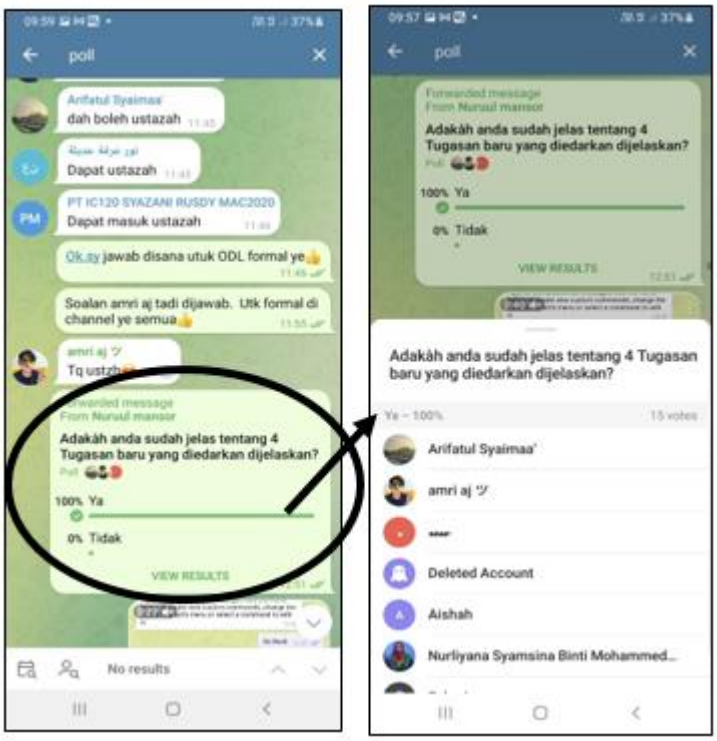


Figure 6 Sample of running a poll designed by the instructor

Other features that are also used to minimise the text messages for conversation is by using Poll (refer to Figure 6). The advantage of using Poll in minimising message text is that the instructor can choose whether to make a poll visible or anonymous. Besides that, through the poll features, the instructor can accept multiple responses from students without receiving answers one by one from them (Davenport, 2020).

NOVELTY OF THE PRODUCT

Telegram is typically used for many purposes including teaching and learning. However, Telegram can be used to manage text messages for conversation purposes in classes during the ODL more systematically by using the features mentioned. The features have been identified to be useful for efficient two-way conversation between the instructor and students, minimizing text messages and communicating at any time easily. With an estimated ratio of 1:25 between an instructor and students in a class, flexible two-way communication management is needed so that communication will become more friendly and holistic.

Communication becomes a challenge for the instructor when lectures could not be held face-to-face as usual. Conventional communication has been replaced with online communication via platforms such as Google Meet, Zoom Meet, and others. However, the instructor chose Telegram over other apps. It was due to some issues faced by students that included limited coverage, not having personal computers, inability to use a computer for a long time, and requiring flexibility in communication. Therefore, the instructor used Telegram as the ODL platform where she managed text messages for the conversation purpose or consultation with students by selecting the most appropriate features in making the ODL classes on Telegram efficient and practical.

CONCLUSION

The Telegram application is very useful for instructors to manage text conversation especially with students. Telegram is also considered very suitable for teaching and learning processes and implementation. Innovation in text conversation management is also important to ensure that communication and all information can be delivered by the instructor and accessed by students effectively.

REFERENCES

Morozov, A., Mukhametzyanov, I., & Evdokimova, O. (2021). Using a smartphone in the learning process: the experience of the 2020 pandemic. Web of Conferences 295, 05017 (2021), EDP Sciences, https://doi.org/10.1051/e3sconf/202129505017

Davenpor, C.t (2020), *Telegram 5.14 adds multiple-answer and quiz polls (APK Download)". Android Police.* 23 January 2020. Archived from the original linkhttps://www.androidpolice.com/2020/01/23/telegram-5-14-adds-multiple-answer-and-quiz-polls-apk-download/ Retrieved on 24 August 2022.

Martim, L. (2015). "Telegram v3.2 Brings Channels for Broadcasting Your Messages To The World". *Android Police*. 22 September 2015 Archived from the original link https://www.androidpolice.com/2015/09/22/telegram-v3-2-brings-channels-broadcasting-messages-world/ Retrieved 24 August 2022.

"Telegram Bot Platform". *Telegram* 25 August 2022. Archived from the original link https://telegram.org/blog/bot-revolution. Retrieved 25 August 2022.

Yu-Rui Wu et al. (2020). Smartphone-Enabled, Telehealth-Based Family Conferences in Palliative Care During the COVID-19 Pandemic: Pilot Observational Study. JMIR mHealth and uHealth, (JMU, ISSN 2291-5222.

12

Ecocraft Game : True Experience in Learning Economics

[1] Nooraza Tukiran, [2] Hafisah Yaakob, [3] Jamilah Mohd Mahyideen,
[4] Nurhanani Aflizan Mohamad Rusli

Faculty of Business Management
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] nooraza788@uitm.edu.my , [2] hafisah@uitm.edu.my,
[3] jamilah@uitm.edu.my, [4] nurhanani@uitm.edu.my

ABSTRACT

EcoCraft is an interactive educational game that utilises Classcraft's ability to improve students' interest in learning Economics. The purpose of creating this product is to provide a different approach and strategy for teaching and learning Economics in higher education institutions. The learning process is entirely different than in the past; thus, merging games and learning to match current changes is a viable option. Classcraft combines the motivating components of gaming to give an outstanding student experience for those who enjoy roleplaying games. EcoCraft employs time-saving solutions to empower students, encourage teamwork, streamline classroom administration, and create a better learning environment. Students become more interested and dedicated to winning the game, which increases their motivation to study Economics. Thus, by mixing games with learning, the educational benefit of playing the EcoCraft game is to enhance motivation to learn Economics.

Keywords: Economics; classcraft; EcoCraft game.

INTRODUCTION

Today's learning process is vastly different from that of the past. In Malaysia today, the development and application of information and communication technology, or ICT as it is more commonly known, is nothing new, particularly in education. The potential for game-based learning has grown dramatically as new technologies allow for ever-increasing levels of complexity in games. Educational gamification is a technology-based strategy for increasing student enthusiasm and participation in the classroom (Simoes et al., 2003; Whitton 2007, 2011).

To be perfect, game-based learning through gamification must adhere to precise processes. The first step is to define the game's objectives and rules; the second is to design the gameplay; the third is to develop the feedback; the fourth is to create the game environment; and the fifth and final step is to prepare the game's narrative. Gamification turns a task into a competition to increase student engagement or participation. According to Normahdiah (2016), gamification in the classroom allows students to address complex issues in contexts such as challenges and games. As a result, learning will become more attractive, dynamic, and engaging.

Students' motivation is critical in educational settings. Raising students' motivation, according to Abramovich and Wardrip (2016), "may be as beneficial as improving other aspects of their education" and accurately predicts educational outcomes for them. Various factors influence students' desire to

study, including the learning environment, teaching style, and challenging course material. Gamification gives students a reason to look forward to class and to have fun while learning. According to Papastergiou (2009), the gamified approach can be used in educational settings to improve students' understanding and inspire them in the classroom. Gamification has primarily been used in educational settings to enhance formative assessment tasks that involve reflective learning. Gamification has been shown to promote productive learning environments by encouraging critical thinking and competence in the classroom (Bicen & Kocakoyun, 2017; Dellos, 2015; Karaaslan & Budak, 2012). Furthermore, learners have a positive attitude toward using Classcraft in the classroom.

In place of the importance of students' motivation and involvement in learning economics, gamification is proposed to be used in teaching and learning. EcoCraft was created using the Classcraft technology to increase learning efficiency, boost student enthusiasm, and provide an engaging and dynamic way to learn economics.

PROBLEM STATEMENT

One of the most significant internal factors that influence students' academic achievement is motivation. Despite its significance, many students have lost the desire for learning owing to a variety of reasons. One of them is that a lot of students do not think the learning environment in the classroom is encouraging. They are easily getting bored and disinterested in what is happening in the classroom. No matter how much group work, debate, or other active learning components are introduced into the curriculum, boredom in the classroom is almost unavoidable. With technological advances, higher learning institutions need to adapt to evolving teaching methods in order to achieve their objectives. Lecturers can help students feel less bored by addressing them in a way that uses gamification to make the class as a whole more fascinating and engaging. Gamification can be a helpful strategy to enhance classroom management, motivate students more, and boost their readiness to participate actively.

DESIGN AND DEVELOPMENT OF THE PRODUCT

To make the Economics lesson more exciting EcoCraft was developed as a game-based method by using the Classcraft's tool in the process of teaching and understanding the subject matter. At the same time, it can also promote positive and good behaviours and stimulate the development of skills such as teamwork and interaction among students.

The game design starts with the game goals, including teaching objectives and the experience the students will get in each quest. They need to complete all game challenges through the five quests in the game. Before they start the game, they must choose their characters and collaborate in the EcoCraft game. The teaching objectives and learning content to test students' knowledge, understanding, and skill could generate game challenges. The contents for the Eco craft game was taken from the leading textbook titled Fundamentals of Economics, written by Tey Hwei Choo, Nabila Ahmad, Zulkhairi Nisa, Irlisuhayu Mohd Ramli, and Rosmaiza Abd Ghani. They are required to answer the questions based on the sub-topic of the lesson. A variety of questions were created by using the applications of Quizizz, Kahoot and Word Puzzle. As students complete the questions, they will gain and employ special "powers" to aid their academic study and assist their companions in times of need. Additionally, they would receive some fantastic rewards for their efforts, such as new equipment and pets to let them customise their characters. Learning time is essential in this EcoCraft game. Students could commit more or less time to the learning activity based on the time setting and allocated by the lecturer. The diagram below shows the flow and design of the EcoCraft game from students' and lecturers' perspectives.

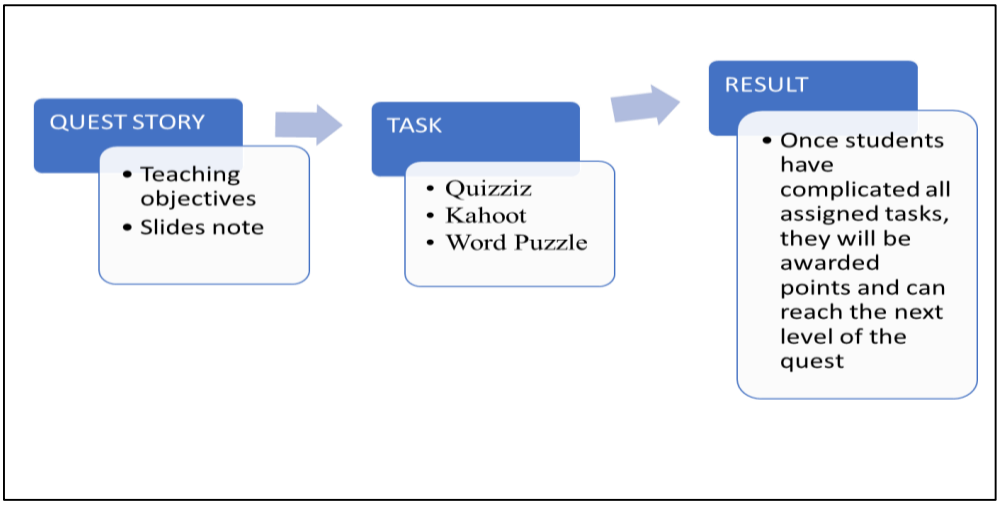


Figure 1 EcoCraft Design from students' perspective

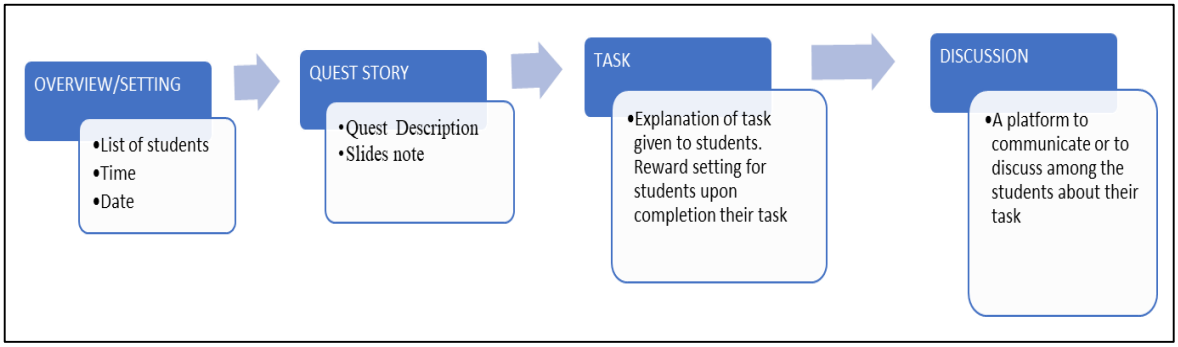


Figure 2 EcoCraft Design from lecturers' perspective

NOVELTY OF THE PRODUCT

As assessing student understanding online is more challenging than in a traditional classroom, student participation is essential when teaching online. If students are actively included in the learning process, how they are remembering and comprehending the subject can be clearly seen. The use of EcoCraft was very interactive and it was easy to use as you could use them as a warm-up activity, and quizzes were similar to battles.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

This educational game may provide several benefits to students. One of them could be to supplement traditional methods of teaching Economics. It can also increase students' interest in Economics and give a more favourable learning environment. Furthermore, this learning technology gives individuals greater freedom in terms of time, speed, and place. It has the potential to be marketed as a digital instructional tool for upper secondary school students in collaboration with teachers.

CONCLUSION

This game aimed to discover what students thought of economic games as a technique for enhancing their interest in studying Economics. This game yielded conclusive and significant results, proving that economic games may motivate students to learn about economics.

REFERENCES

Abramovich, S & Wardrip, P. (2016). Impact of badges on motivation to learn. *Digital Badges in Education*. Edited by Muilenburg, Lin Y. and Zane L. Berge. Kindle Edition. New York: Routledge, 1339-1521.

Bicen, H. & Kocakoyun, S. (2017). Educational Technology: Current Issues, *World Journal on Educational Technology, 9*(1). 18–23.

Cameron, KE., & Bizo, LA. (2019). Use of the game-based learning platform KAHOOT! to facilitate learner engagement in Animal Science students. *Research in Learning Technology*, *27*, 1-14.

Tey Hwei Choo, Nabila Ahmad, Zulkhairi Nisa, Irlisuhayu Mohd Ramli & Rosmaiza Abd Ghani (2017). *Fundamental of Economics*. Oxford Fajar.

Dellos, R. (2015). Kahoot! A Digital Game Resource for Learning. *International Journal of Instructional Technology and Distance Learning*, *12*, 49-52.

Karaaslan, İ. A., & Budak, L. (2012). Research on the use of mobile phone features by university students and its impact on their communication practices in everyday life. *Journal of Yasar University, 26*, 4548-4525.

Normadiah Sheik Said. (2016). Gamifikasi pendekatan baharu dalam pengajaran. Serdang: UPM.

Papastergiou, M. (2009). Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. *Computers & education*, *52*(1), 1-12.

Simões, J., Redondo, R. D., & Vilas, A. F. (2013). A social gamification framework for a K-6 learning platform. *Computers in Human Behavior*, *29*(2), 345-353.

Whitton, N. (2011). Game engagement theory and adult learning. *Simulation & Gaming*, *42*(5), 596-609.

Whitton, N. (2007). *Motivation and computer game-based learning*. Proceedings of the Australian Society for Computers in Learning in Tertiary Education, Singapore, 1063-1067.

Witari, I., Anwar, K., & Arifani, Y. (2021). *The Effect of Classcraft on Enhancing Grammar Performance of Adult Learners.* 1st UMGESHIC International Seminar on Health, Social Science and Humanities (UMGESHIC-ISHSSH 2020) (pp. 108-121).

13

An Interactive Game Application: Economics Brilliant

Sutina Junos
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
sutina@uitm.edu.my

Faridah Pardi
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
faridah405@uitm.edu.my

Masturah Ma'in
Universiti Teknologi MARA Cawangan Selangor
Kampus Puncak Alam
maszan@uitm.edu.my

ABSTRACT

Game Application: Economics Brilliant was created to assist students, particularly UiTM students in improving their understanding of economics courses, especially Microeconomics and Macroeconomics. This game application is very useful for Open and Distance Learning (ODL) as the lecturers can use it as their assessment delivery method and at the same time it enables the students to better understand the economics courses in an enjoyable and less stressful way. This game application consists of questions on fact, theory, principle and calculation. It is a great way to train and stimulate one's brain. It also improves the learning environment and offers a better standard of education for young people across the globe to better equip them for the future.

Keywords: application, brilliant, ODL, learning environment

INTRODUCTION

Due to the COVID-19 crisis, people now have to live in a new norm including school and higher education students who now need to undergo Teaching and Learning at Home (PdPR) and Open Distance Learning (ODL). Due to this new method of learning, this application is designed to assist students, especially UiTM students in improving their understanding of economics courses, especially Microeconomics and Macroeconomics. This game application is very useful for Open and Distance Learning (ODL) because the lecturers can use it as their assessment delivery method and enable the students to better understand the economics courses.

This game consists of questions on fact, theory, principle and calculation which is a great way to train and stimulate one's brain. Our application focuses on two economic categories namely Microeconomics and Macroeconomics including the concepts of elasticity, supply and demand, gross domestic product (GDP), the balance of payment (BOP) and others. The steps in designing the game application and its contents are depicted in Figure 1 and Figure 2.

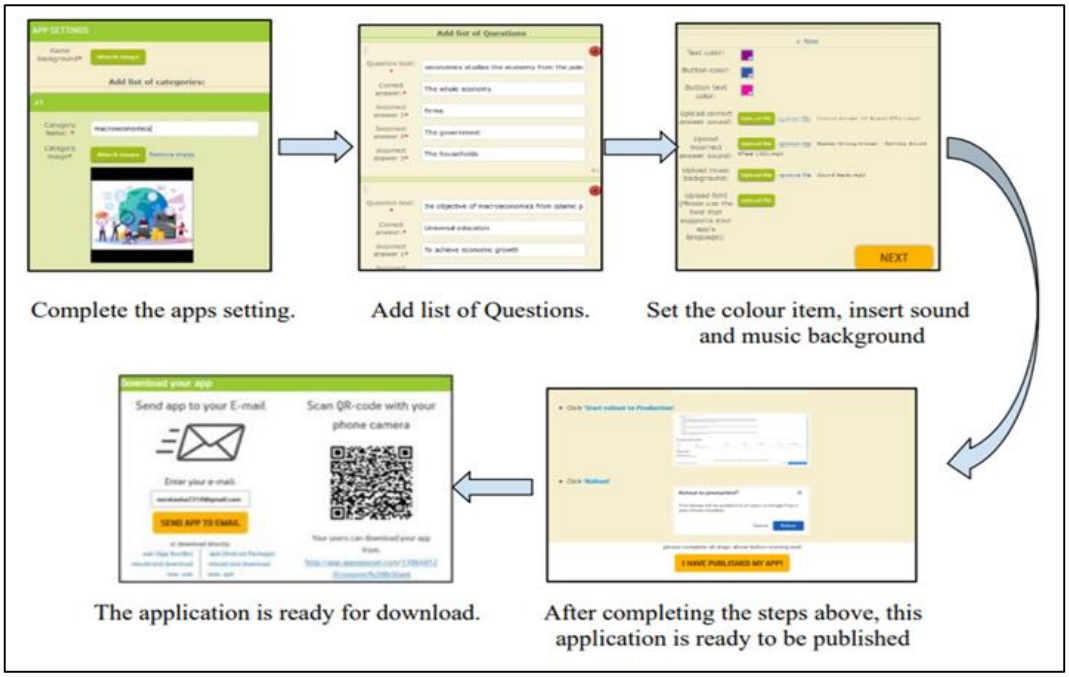


Figure 1 The design of Game Application: Economics Brilliant

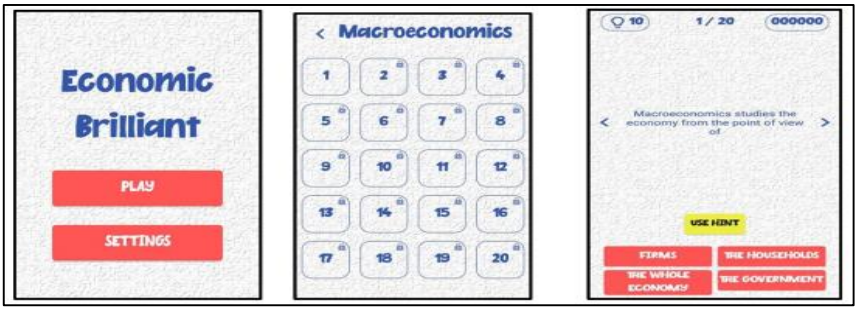


Figure 2 The content of Game Application: Economics Brilliant

PROBLEM STATEMENT

The development of this application was driven by three reasons. The first is due to the growing demand for educational applications, especially following the COVID-19 pandemic. Secondly, some of the students were found to have difficulties in understanding certain concepts in Microeconomics and Macroeconomics, but are ashamed to ask for clarifications from their lecturer. As indicated by Sahu (2014), some students are quick learners, whilst others require extra attention and guidance. Hence, this idea was formed to help this type of student to better understand these subjects. Lastly, in line with the changing times, students no longer need to carry their tutorial books and textbooks or find reading materials in the library. With this application, information is just at your fingertips and can be accessed from anywhere at any time.

OBJECTIVES

The objective of Game Application: Economics Brilliant is to assist students, especially UiTM students in improving their understanding of economics courses, especially Microeconomics and

Macroeconomics. It is also useful for Open and Distance Learning (ODL) as the lecturers can use it as their assessment delivery method and reduce stress among students as this game application is highly interactive, user-friendly, and colourful.

Learning is now made easier with the availability of this application. Fun games have been designed for mobile applications that engage students to think progressively and from different perspectives (Roy, 2017). The novelty of this app is that students can play while learning. Before playing the game, students are first taught about microeconomic and macroeconomic subjects. While playing the game, they need to answer several questions about the subject they have learned and collect points to qualify for the next level. The points collected indicate whether the students are proficient enough in the subject. A high score indicates that they are skilled and qualified for the next topic or level, whilst a low score indicates that they need to repeat the level. This application is intended to help students revise and pay attention in class as the points show their progress and proficiency level.

Next, this application also includes a chat space for students to ask their lecturers about anything they do not understand. This chat room is suitable for students who are ashamed to ask questions face to face. The answers they receive can also help them understand the subject better as it is answered by not only their lecturer but also by other experts all around the world.

APPLICATION FUNCTIONALITY

Firstly, the application can be used anywhere and at any time. Students can still learn even if they are on holiday or in their hometown. They can learn at their convenience. Next, the application is individually focused. Learning in a big crowd is not an easy task (Huang, 2017). Some students are fast learners while others are not. Some students are too shy and hesitant to ask questions. Such students are often overlooked by teachers and lecturers who would just proceed to the next topic. These students will struggle to understand the next topic as well because most topics are related to each other. This application can solve the problem by enabling the students to replay the topic at their convenience.

This application also allows for a fun learning experience. Relying on books alone is very unappealing and will eventually bore the students. This game-learning application can healthily energise their minds while absorbing knowledge. It is a fact that people can only keep their attention for a short period and get distracted easily. In contrast, fun activities lead to longer engagements (Camilleri & Camilleri, 2019). In the context of learning, fun activities such as the gaming application can motivate students to concentrate on the lesson at hand.

In addition, education-oriented games offer cost benefits (Camilleri & Camilleri, 2019). By using applications and technologies, books and other traditional study materials are no longer needed. Hiring private tutors or going to tuition classes may also become a thing of the past. With game-learning applications, students only need to use their mobile phone or laptop and just download the application for free.

Furthermore, game-learning applications enable students to track their learning progress (Huang et al. 2017). Parents can also see their children's learning progress and provide guidance whenever needed. With this functionality, the students can improve themselves accordingly.

NOVELTY OF THE PRODUCT

This Economics Brilliant Game Application is the original product and has never been published or applied somewhere else before. As the problem statement is given in the previous section, this application would provide a platform for the students to easily access information and important notes in Economics study. The concept of going paperless would also highlight sustainability learning, particularly in recent decades of digitalisation in education.

COMMERCIALIZATION POTENTIAL

Products and services are determined by their quality, attractiveness, and usability. The selection of a product is mainly driven by the person's WANTS and NEEDS (Twin, 2020). Hence, we need to make sure that we provide both these elements to consumers, and in this context, the university students. Many game applications have a lot of ads which are a nuisance for the players. Therefore, we designed a game application with very few ads to ensure that the users are not annoyed by them. This brilliant economic game application is very simple, does not require help info, and will not confuse the users. This is because the users would want to play the game immediately without having to read the help info. It also has easy game control thus providing a great and fast gaming experience. The contents of this game can also increase the student's understanding of economics which is considered a heavy and critical subject. Finally, this game application does not require any account registration.

CONCLUSION

One of the interesting features of learning applications is that they intensify the functions of teaching methods and the delivery of academic results. As students typically have their mobile phones, they can undergo self-study mode and focus better. This application also allows students to learn at their convenience, regardless of location and time. The students can simply receive and record incoming data and information from anywhere. This game-learning application also promotes a stress-free environment where the students feel more relaxed and unpressured in learning. It is strengthened by its user-friendly features with no complicated text layout. The application transforms intense traditional learning into pen-based computing technology that is excellent for decoding and analysing certain learning issues.

The usage of this game-learning application also promotes good learning habits and improves creativity. It can produce a generation of smart students with better grades. Educational game applications may be able to help one connect with others while providing a way forward to solve gaming problems and strengthen the community. Although the current economic environment is very challenging, the mobile gaming industry continues to grow and create new jobs. The current generation can improve the current economic and social environment with their expertise in developing game applications.

REFERENCES

Camilleri, A. C., & Camilleri M. A. (2019). Mobile Learning via Educational Apps: An Interpretative Study. Proceedings of the 2019 5th International Conference on Education and Training Technologies, (88–92). https://doi.org/10.1145/3337682.3337687

Huang, Y. L., Chang, D. F., & Wu, B. (2017). Mobile Game-Based Learning with a Mobile App: Motivational Effects and Learning Performance. Journal of Advanced Computational Intelligence and Intelligent Informatics, 21(6), 963-970.

Roy, S. (2020). 5 Benefits Of Using Mobile Apps In Education. https://elearningindustry.com/mobile-apps-in-education-5-benefits

Sahu, A. (2014). Slow Learners And Fast Learners: It Needs To Justify The Both Types Of Students. Education Today. https://www.edutoday.in/2014/02/slow-learners-and-fast-learners-it.html

Twin, A. (2020). The 4 Ps of Marketing and How to Use Them in Your Strategy. https://www.investopedia.com/terms/f/four-ps.asp

14

‘StudySmart’ – A Student’s Planner Application

Sutina Junos
Universiti Teknologi MARA Cawangan Negeri Sembilan Kampus Rembau
sutina@uitm.edu.my

Norliza Dzakaria
Universiti Teknologi MARA Cawangan Negeri Sembilan Kampus Kuala Pilah
norliza864@uitm.edu.my

Faridah Pardi
Universiti Teknologi MARA Cawangan Negeri Sembilan Kampus Rembau
faridah405@uitm.edu.my

ABSTRACT

‘StudySmart’ Application is an online study planner for the students to manage their study schedule during open learning distance (ODL). By having an online class during ODL, students have to struggle with their studies, revisions, online quizzes, online tests and assignments, and at the same time face various barriers such as no Internet access, poor home environment, improper management of notes and tutorials, personal problems and many others that cause them to lose focus, experience poor time management, and have low performance. The ‘StudySmart’ Application is the best solution as it has a study timer, course & assignment organizer, video & record storage, and leisure & fun activities. The features of this app are very interesting with lots of colors and music. It can make the students' life easier, allowing them to manage their time properly and improve their performance.

Keywords: Application, planner, open learning distance, record storage, performance

INTRODUCTION

The COVID-19 pandemic has affected education systems around the world, causing the closure of almost all schools, kindergartens, universities and colleges. The government decided to temporarily close educational institutions in the country in an effort to reduce the spread of COVID-19 and changed the existing teaching and learning methods to Home Teaching and Learning (PdPR) and Open Distance Learning (ODL) (Rae, 2020). This is a new environment for the teachers, lecturers and students in terms of learning style. They were introduced to many types of online teaching platforms such as Google Meet, Cisco Webex, Zoom Meeting, Microsoft Team and many others. By having an online class during ODL, students had to struggle with their studies, revisions, online quizzes, online tests and assignments, and at the same time face numerous barriers such as no Internet access, poor home environment, improper management of notes and tutorials, personal problems and many others (Milosievki et al., 2020) which cause them to lose their focus, experience poor time management, and have low performance. Other than that, according to Carroll (2021), online education offers little opportunity for direct interaction, thus leading to the inability to understand the student or keep track of their progress and discipline.

The 'StudySmart' Application is the best solution as it consists of a study timer, course & assignment organizer, video & record storage, and leisure & fun activities through mini games. This Application can help students to overcome the aforementioned problems during Home Teaching and Learning (PdPR) and Open Distance Learning (ODL). This application can attract the interest of students with its many functions and various online games that can help the students to relax after studying. Scott (2020) reported that most gamers assert that playing video games, even violent ones, is a good stress reliever. This Application can also help students manage their time more efficiently and effectively.

APPLICATION FUNCTIONALITY

One of the functions of this application is the time taker which serves as a study timer for the students. For example, when Elyana sets a timer for 2 hours for studying and 30 minutes for rest, the app will ring when the respective times are up. This application incentivizes the student, whereby the longer they spend time studying, the more points they will get for online games. It also serves as a reminder to the students about their online class and assignment submission. Next, it has an assignment organizer whereby students can list the deadlines for their assignments and assessments, notifying them when the deadline is getting closer. The application also has an audio library for those who want to listen to music while studying, without the need to open a YouTube channel or any music apps. Lastly, the app provides online games for students to release their tension whenever they feel tired. They can make a group and play online games together with their friends.

The design and content of this applications are as follows:

The first page is the home page which welcomes the students. It consists of the menu list namely home, time taker, assignment organizer, audio library, and mini game.

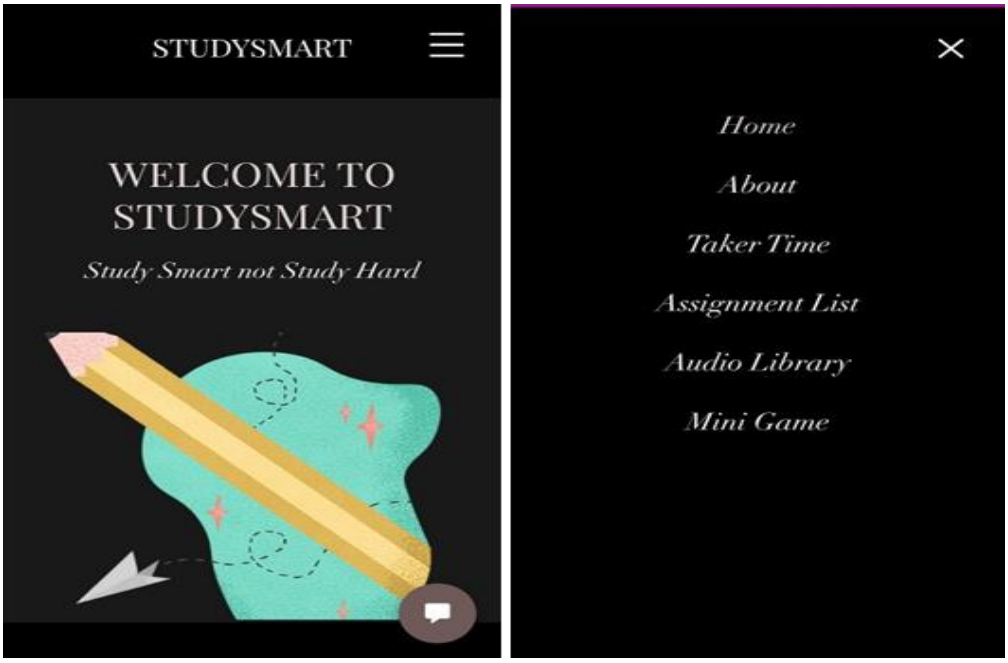


Figure 1 Home page of the 'StudySmart' Application

The second page is the time taker for the students to keep track of their study time, online class time, and deadlines for assignment and assessment submissions.

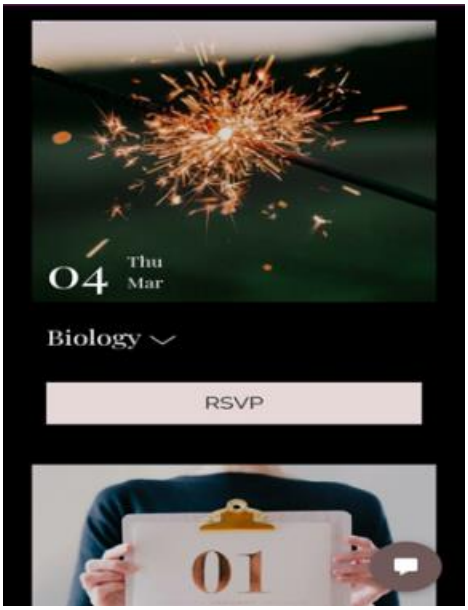


Figure 2 Time Taker page in the 'StudySmart' Application

The third page is the assignment organizer for the students to list all their assignments along with the submission deadlines. They will be notified when the deadlines are getting closer.

Figure 3 Assignment Organizer page in the 'StudySmart' Application

The fourth page is the audio library for students who want to listen to music while studying They can just choose their favourite song in the list.

Figure 4 Audio Library page in the 'StudySmart' Application

The last page is the online mini game for the students to play to release their stress after completing and submitting their assignments, or after finishing their online classes.

Figure 5 Mini Games page in the 'StudySmart' Application

NOVELTY OF THE PRODUCT

The 'StudySmart' application has many functions that can make life easier for students. These functions include the time taker, assignment organizer, and an extra function that differentiates this app from others. The Audio Library and online mini games could attract students to use this app. It also helps them to overcome problems during Home Teaching and Learning (PdPR) and Open Distance Learning (ODL) and to manage their study time properly.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

This application gives students the option to choose the most suitable application based on the features and advantages provided. This application can be accessed via the Google Playstore at a reasonable price based on the advantages offered in making the students' lives more organized and efficient, thus enabling them to achieve excellent results.

REFERENCES

Carroll, A. (2021). Positive and negative impact of online education on students. Retrived from https://world.edu/positive-and-negative-impact-of-online-education-on-students/

Milosievski, M., Zemon, D., Stojkovska, J., & Popovski, K. (2020) Learning Online: Problems and Solutions. Retrieved from https://www.unicef.org/northmacedonia/stories/learning-online-problems-and-solutions

Rae, J. (2020). The Impact of COVID-19 on Education. Retrived form https://easyreadernews.com/the-impact-of-covid-19-on-education/

Scott, E. (2020). The Link Between Video Games and Stress Relief. Retrieved from https://www.verywellmind.com/how-video-games-relieve-stress-4110349

15

Overcoming Challenges in Teaching Programming in a Virtual Environment

Farizuwana Akma Zulkifle , Nur Ida Aniza Rusli, Fatin Nabila Abd Razak

Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah

farizuwana@uitm.edu.my

ABSTRACT

Different digital platforms and tools, such as learning management systems, massive open online courses, and various kinds of video communication software, are the foundation of online learning. The traditional method of educating and learning programming languages requires physical classroom sessions with educators in a computer lab. Students need to have access to computers where they can practise the assigned programmes under the supervision of the educator. During the COVID-19 outbreak, implementing online teaching tools helped educators to educate students virtually. Instead of students being physically in class, they are available to attend classes virtually and view the course materials through online platforms. For the engagement of the students, an online platform has been designed for a programming course, CSC126 by utilising a Google Site that allows them to access the course materials. Furthermore, this online platform is combined with other online tools such as graphic design software to create a fun, interactive and engaging classroom. The Google Site can be accessed through this link: https://sites.google.com/uitm.edu.my/csc126/.

Keywords: programming, online tools, graphic design software

INTRODUCTION

The coronavirus outbreak (COVID-19) has resulted in a temporary closure of schools, colleges, and universities. The aftermath of this pandemic has led to a shift in learning pedagogy from conventional classroom settings to online learning, which requires educators and students to be creative and to have skills in using technology (Roth, 2015).

Fundamental of Algorithms and Computer Problem Solving (CSC126) is a computer programming course enrolled by students in the Faculty of Applied Sciences, Universiti Teknologi MARA (UiTM) Kuala Pilah Campus. Before the COVID-19 strike, this course was taught in a traditional face-to-face format with a variety of outcome measures. Given the current pandemic situation, teaching computer programming offers considerable challenges since this subject requires ongoing interaction and involvement with students (Gonçalves et. al., 2021). It is difficult for the educator to remain engaged with students without traditional classroom support, resulting in poor quality programming skills, inadequate programming knowledge, and passive involvement during classes and group projects.

Therefore, this study aimed (1) to identify and incorporate relevant tools that can improve the performance of computer programming courses/subjects; (2) to discuss e-learning platforms; and (3) to enhance students' understanding and application of concepts, ideas, and processes, while also boosting their motivation to learn computer programming during the pandemic. Hence, this paper comprises

several sections namely the introduction, design and development, discussion, conclusion and novelty of the product.

DESIGN AND DEVELOPMENT

The purpose of this study is to identify and incorporate relevant tools that can improve the performance of computer programming. In pursuit of finding an alternative to PowerPoint, this study applied a variety of tools described as follows:

Google Site.

A Google Site is developed as a medium to centralise all content, including lecture notes, laboratory modules, and video recordings. This platform benefits educators and students by enabling other software applications to be embedded into it. Thus, all teaching and learning materials for CSC126 can be accessed easily by the students. The interface of the Google Site can be seen as in Figure 1 and can be accessed through this link: https://sites.google.com/uitm.edu.my/csc126/.

Figure 1 The main interface of the CSC126 Google Site platform

Canva.

Canva is a well-known graphic design tool that facilitates the rapid production of a wide range of creative materials, significantly aiding educators in creating interesting lecture notes and presentations (Canva, 2022). In this study, the educator recorded her lectures using Canva screen recording. Canva screen recording allows the presenter to record him/herself using the facecam or the webcam. Hence, it allows the educator to be present in the teaching and learning process. This increases the immersion of the learning process as depicted in Figure 2. Another significant advantage of this tool is that the content created in Canva can be easily shared with students by linking it to Google Sites using Canva hyperlinks.

Figure 2 Screen recording using Canva

Loom.

Loom screen recording is employed since the educator needs to demonstrate the C++ code using a text editor such as DevC++ or Visual Studio Code for the laboratory session as depicted in Figure 3. As an added benefit, this software enables the educators' physical presence, which would encourage more student engagement.

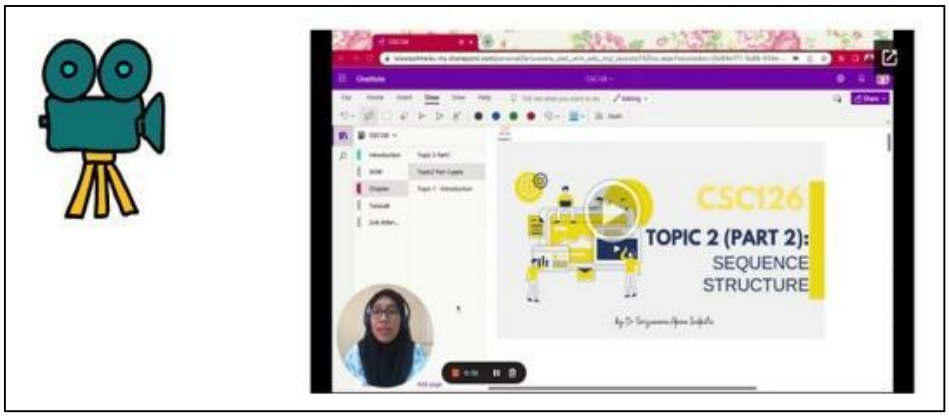


Figure 3 Screen recording using Loom

Anchor. FM.

Podcasts are increasingly being used for knowledge transfer in the current learning process situations. The dissemination of audio recordings gives students a general overview of the topics they will learn in the lectures. In this study, students were given access to a podcasting platform called Anchor. FM as shown in Figure 4.

JDoodle.

The learning process in computer programming requires a lot of practice. Therefore, this study uses JDoodle (2022), an online C++ compiler, in addition to the offline text editor like DevC++ or Visual Studio Code, to aid students in improving their programming skills. As depicted in Figure 5, JDoodle is a free source program with a user-friendly interface that ease students to write, compile and run their C++ programmes.

JotForm.

In addition to the application previously mentioned, this study used JotForm (JotForm, 2022) to collect student feedback through a semi-structured questionnaire. The JotForm consists of seven closed questions and two open-ended questions linked to the Google Site. As depicted in Figure 6, the questionnaire aims to determine students' perceptions of learning computer programming and their overall perception of using the e-learning platform provided by the teacher.

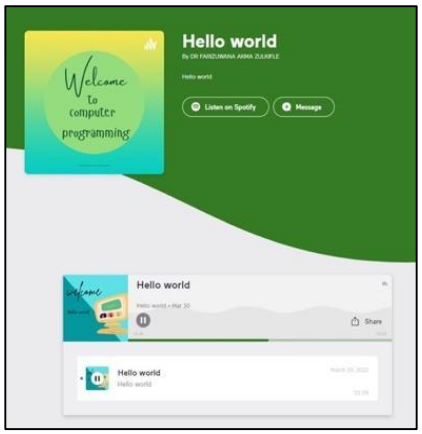


Figure 4 Audio recording using Anchor. FM

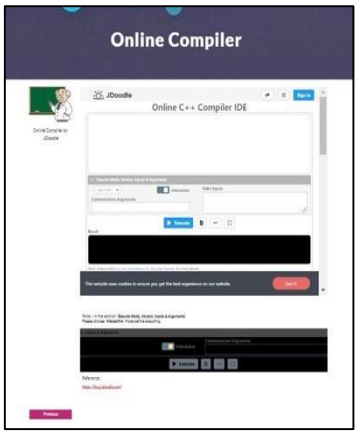


Figure 5 JDoodle online compiler

Figure 6 QR code for student feedback form

DISCUSSION

Overall, there are various platforms that educators can explore and apply in their online classes. Most significantly, incorporating the relevant tools into one platform through Google Sites would enable educators to improvise their computer programming classes. Educators can create and personalise their teaching materials in various ways. Instead of only using Microsoft PowerPoint in their programming classes, they can use Canva which enables more sophisticated designs with simpler manoeuvres. Furthermore, Canva provides an educational licence to registered educators and the educator account allows them to utilise the readymade templates. Besides that, it has a practical drag-and-drop tool that allows educators to create visual aids in a shorter time. Canva also offers an online video recorder where educators can record themselves teaching while presenting the slides all at the same time. There are also a few other good features in Canva such as creating video highlights and video editing. Other than Canva, educators can explore Loom, a free screen recorder web-based application. Through Loom, educators can choose whether to edit their video using the browser or in the Loom app itself.

On the Google Site, students can view the teaching materials and access JDoodle online compiler where they can write, compile and run their C++ programmes. If students have issues installing the text editor on their computers, this online compiler will help them to complete their lab and tutorial exercises. Meanwhile, the feedback forms were given to the students towards the end of the semester. Compared to other platforms, JotForm allows respondents to give feedback using a voice recorder as depicted in Figure 7. Hence, students were given the option whether to record their voice or to type their responses.

Figure 7 Feedback form that includes an option either to voice record or type student response.

Overall, 31 students responded to student feedback surveys. According to their responses, the overall perception regarding the ability to learn computer programming is good (71%), as shown in Figure 8, and about 61% of the students can use all the online platforms provided by the teacher as depicted in Figure 9. These results indicated that the teacher had delivered a good strategy in implementing and integrating multiple online learning platforms in teaching computer programming subjects online.

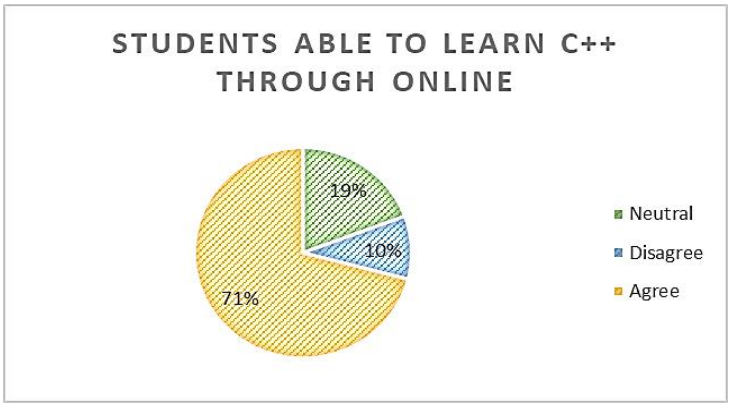


Figure 8 Question 1

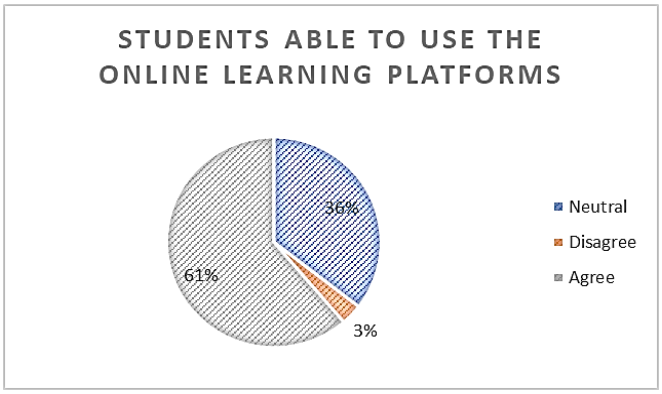


Figure 9 Question 2

In conclusion, most students have favourable opinions of this online learning platform. This study shows that integrating relevant tools into one platform can help to improve the performance of online computer programming classes as all students have equal access to the online teaching material. Hence, it can be considered as an effective learning strategy. Other than that, students have shown their adaptability and acceptance of the online learning approach during the COVID-19 pandemic. Moreover, online learning appears to be an efficient learning strategy that can save time, allow courses to be completed quickly, and, most importantly, control the spread of the COVID-19 virus among students while they are pursuing their education. For future recommendations, measurement and identification of challenges and perceptions encountered during online learning should be discussed in more detail to help better understand how optimal learning experiences can be reached in online learning.

NOVELTY OF THE PRODUCT

The novelty of this research is the use of an e-learning platform for the digitization of CSC126 materials. The Google Site provides unrestricted access to CSC126 course materials and ensures that knowledge is fully disseminated to students. As the subject involves both theoretical and practical concepts, this platform allows students to access lecture notes and improve their programming skills through a text editor embedded in the Google Site. Another novelty of this study is the utilisation of podcast technology via the platform Anchor. FM. By using this approach, students can listen to the basic summary of the topics that they will learn, allowing them to prepare better before attending online classes.

REFERENCES

Canva, (2022). *What will you design today?* Retrieved August 8, 2022, from https://www.canva.com/en_gb/

Loom (2022), *How Loom Works* . Retrieved August 8, 2022, from https://www.loom.com/

JDoodle (2022), *JDoodle*. Retrieved August 2, 2022, from https://www.jdoodle.com/

JotForm (2022), *Powerful forms get it done*. Retrieved August 2, 2022, from https://www.jotform.com/

Roth, R. (2015). Institutional strategies and practices for integrating learning technologies in the inner, outer and virtual spaces. *International Journal of Learning, Teaching and Educational Research*, 12(3), 80-97.

Gonçalves, A. C., Ferreira, D. J., & Neto, V. V. G. (2021). Computer Programming Teachers' Challenges for Promoting Students Regulation on Flipped Learning Activities during COVID-19. *Revista Diálogo Educacional*, 21(71), 1820-1838.

16
Double Entry Principles & T-accounts

Saflina Azis
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
saflinaa@uitm.edu.my

Mustafa Kamal Mat
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
muskamal@uitm.edu.my

Norhidayah Ismail
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
norhi0527@uitm.edu.my

ABSTRACT

Accounting produces reports to describe economic events of any organisation which involve four main stages (classifying, recording, summarising and interpreting). Each of the stages has a significant impact towards another in preparing the financial reports. Process of recording the economic events will be based on the principles of double entry and continue with the preparation of T-accounts. Recording stage is known as one of the crucial parts in accounting. An innovation of teaching has been developed to encourage students in having a good understanding of the subject as most of them have no accounting background knowledge. A short video was developed to describe the processes of recording the double entry principles and preparation of T-accounts briefly.

Keywords: accounting, recording, double entry, T-accounts.

INTRODUCTION

Accounting involves four stages: classifying, recording, summarising and interpreting. Classifying refers to the process of identifying the accounting data from its source of documents (invoice, receipts) into a relevant group (payment, receipts). Then, they are recorded in their appropriate journals or books of prime entry (general journal, sales journal) and will be posted to the ledger afterwards (purchase ledger, debtors ledger). These accounting data will be summarised in the form of financial statements periodically and analysed to provide useful accounting information for its users (Rauf, Abu & Mahmud, 2022).

The recording stage can be considered as a crucial step in the accounting process. Throughout the previous semester, we found that students are unable to understand the principles of double entry and T-account in recording the accounting transactions correctly. Double entry principle is where a transaction is being recorded twice in an account either on the debit or credit side. The act of debiting or crediting will give the effect of either increase or decrease in specific asset, liability, owner's equity, revenues or expenses. The problem arises when the students cannot make a right recording whether to debit or credit the transaction given. Hence, this innovation is created to assist the students in understanding the double entry principles and how to record the accounting data into the T-accounts correctly.

The objectives of this innovation are as follows:

a. To assist the students to understand the double entry principles and T-accounts using an interactive guided video.

b. To provide learning materials on double entry principles and T-accounts which can be accessed online and offline.

Students with no accounting background found that it is difficult to apply the correct double entry principles. Most of the students come from science backgrounds during their secondary school and they struggle to tackle accounting terminology. This innovation is designed for students who registered for Introduction to Financial Accounting (ACC117/ACC106) course at Universiti Teknologi MARA Seremban campus which involved part 2 Diploma in Public Administration (AM110) from the Faculty of Administrative Science and Policy Studies (FSPPP), and part 4 Diploma in Sport and Recreational Management (SR111) from the Faculty of Sport Science and Recreational (FSR). Study done by Hussin et al. (2018) found that there were high failure rates for this subject among the students, so they initiated a game-based learning to overcome the problem and there were positive outcomes after the implementation of their initiatives. It turns out that interactive learning gives a significant effect to the students' performance.

Videos can be an effective tool in teaching tool kit (Brame, 2015). Thus, it was developed as innovation initiatives to encourage the students in having good knowledge in this accounting subject. In the video, the students can see clearly how each T-account should be prepared correctly based on the correct double entry principles applied. This video has won a silver award in the Accounting Education Competition 2021 (AEC 2021) organised by Faculty of Accountancy Universiti Teknologi MARA Seremban Campus in October 2021 (Figure 1).

Figure 1 Result of AEC 2021

DESIGN AND DEVELOPMENT OF THE PRODUCT

The innovation on the guided video was designed and developed based on the feedback received from the students. At the beginning of the semester, a short Google Form survey was distributed to the students who enrolled in the ACC117/ACC106 subject. A few questions were asked to know the students' background and their perception towards accounting courses which are shown and described in Figure 2, 3 and 4.

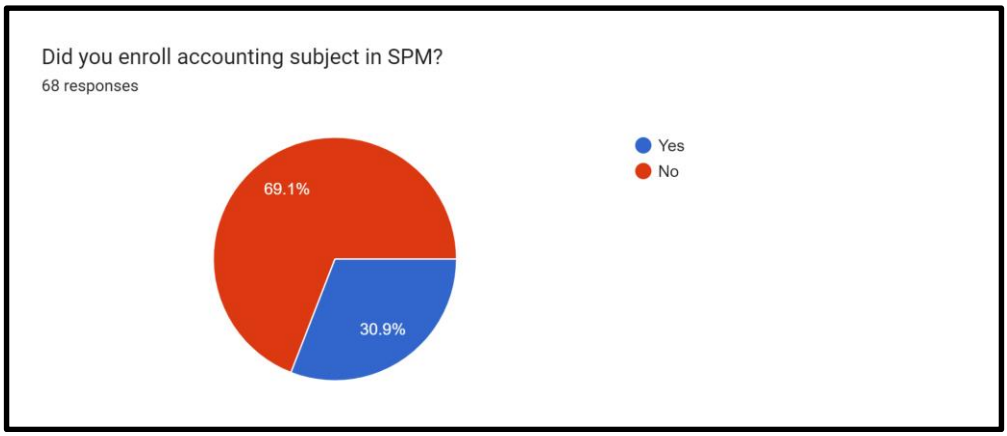


Figure 2 Enrolment of Accounting Subject in Sijil Pelajaran Malaysia (SPM)

Based on the survey, 69.1% of the students did not have any background knowledge in accounting (Figure 2) as they did not enrol in the subject during the SPM.

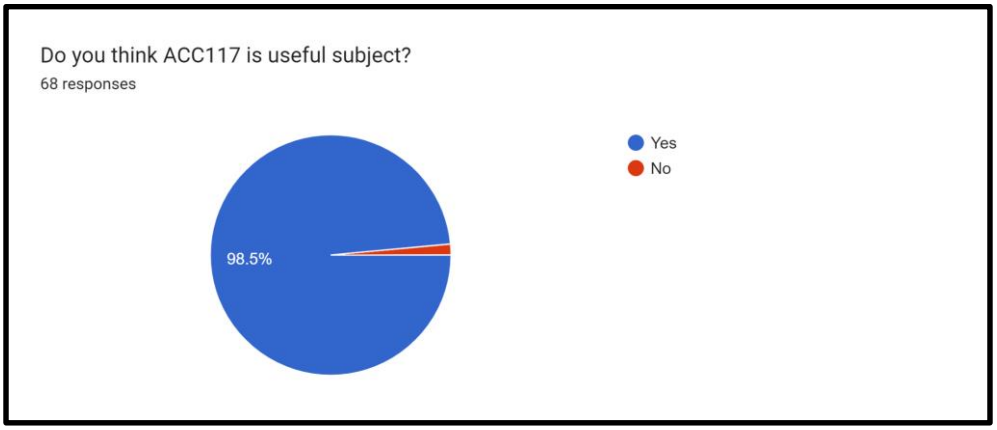


Figure 3 Accounting is Useful Subject

Figure 3 described 98.5% of the students who agreed that accounting was a useful subject for them. However, 90.9% of the students revealed ACC117 was a difficult subject (Figure 4).

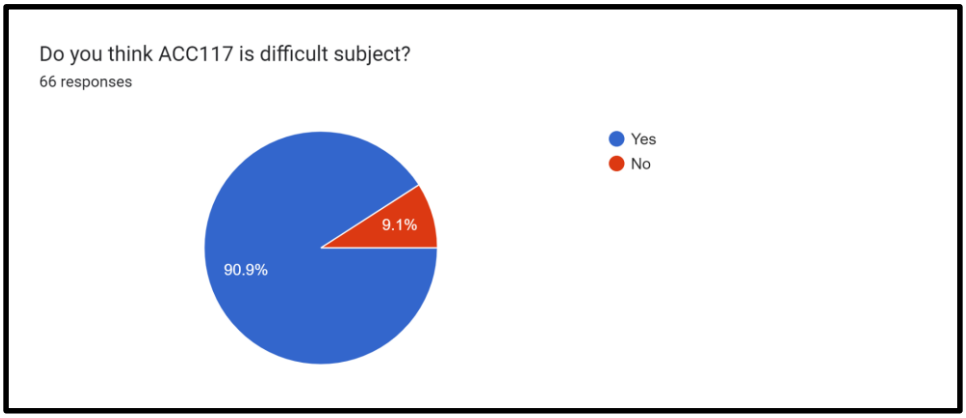


Figure 4 Accounting is Difficult Subject

The content of the video (double entry principles and T-accounts) has been chosen as it is a prerequisite in understanding the subject. The students must possess a good understanding in this topic to prepare the financial reports correctly. The understanding of the topic will give effect to the rest of the topics in accounting.

The video was developed using Keynote Application. In this 5:30 minute video, the basic information on the double entry principle was given together with numbers of illustrations. Each of the illustrations given will describe different principles of double entry and students required to prepare a complete T-accounts.

The video clearly shows how to record the transactions given into the appropriate accounts and ledgers. We found that most students were having problems in recording the items into the right accounts and ledgers. So, this video will teach the students on how to record the items in each T-account related to the illustration. After they have finished recording all the items given, they are required to close the T-account and this video also will show them on how to close the T-account at the end of the period correctly (Figure 5). This video was uploaded in the Google Classroom so that students can easily access and watch the video at any time repeatedly.

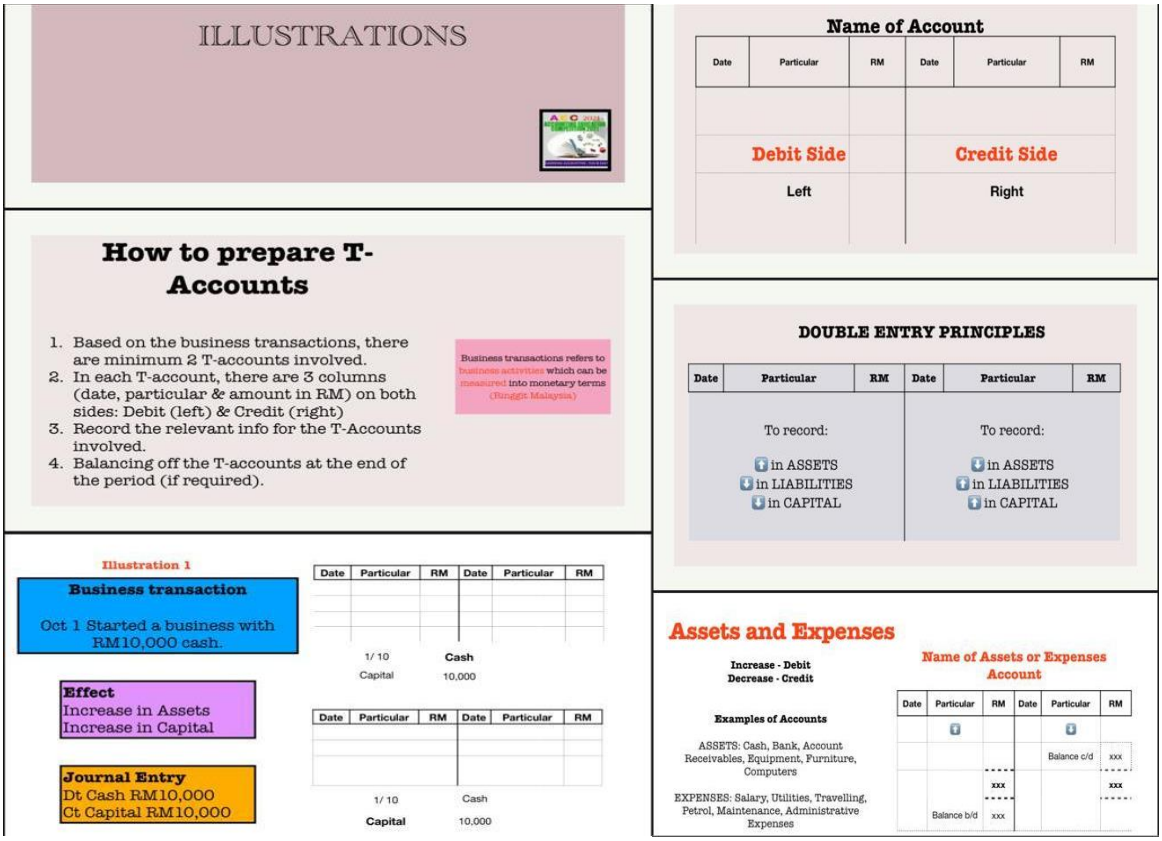


Figure 5 Content from the Video on Double Entry Principles & T-accounts

NOVELTY OF THE PRODUCT

The movement in the preparation of T-accounts has been shown clearly in each of the illustrations given based on the different double entry principles.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

There is a potential for the product to be used by students from other programmes/campuses.

REFERENCES

Brame, C.J. (2015). Effective educational videos. Retrieved from http://cft.vanderbilt.edu/guides-sub-pages/effective-educational-videos/.

Hussin, A. H., Tahir, W. M. W., Noor, I. H. M., Ismail, N. & Daud, D. (2018). *Learning Accounting Via Game Based Approach*. Proceedings: International Conference on Business, Management, Accounting, Tourism & Hospitality, 26-28.

Rauf, F. A., Abu, A. & Mahmud, R. (2022). Financial Accounting for Non-accounting Students (7th ed.). Malaysia: McGraw-Hill Education.

17
Easy Step

[1] Musliha Musman, [2] Salwa Muda, [3] Raziah Bi Mohamed Sadique, [4] Amariah Hanum Hussin

Faculty of accounting
Universiti Teknologi MARA Cawangan Negeri Sembilan Kampus Seremban

[1] musliha5468@uitm.edu.my, [2] salwa542@uitm.edu.my,
[3] razia350@uitm.edu.my, [4] *amariah@uitm.edu.my*

ABSTRACT

Easy Step is a video education approach that helps students enhance their understanding through a variety of teaching methods. It was created in response to students' perceptions concerning cost classification by function as difficult and complicated. Since cost classification is a fundamental concept in management accounting courses, students must comprehend it thoroughly before moving on to the next topic. Thus, the Easy Step video provides a step-by-step technique to assist students in strengthening their understanding of cost classification by function. Since it is an online video, the student can view it anytime and anywhere. It takes about 7 minutes to view and contains attractive images, clear explanations, and great sound. The exercise on cost classification by function, with a score of 40 marks, is designed to evaluate the student's understanding after viewing the video. One hundred five non-accounting students from the UiTM Negeri Sembilan Seremban campus had viewed the video, with 55.2% scoring more than 30 out of 40 marks. This demonstrates that the educational video may provide students with knowledge while also making the learning process more engaging, allowing students to succeed.

Keywords: educational video, media in education, educational technology, learning technologies

INTRODUCTION

Students actively seek out and anticipate more engaging and exciting learning experiences as of the rapid growth of technology and the digitization of daily life (Anastasiadis et al., 2018). Therefore, education must be updated to integrate modern methods, techniques, and technology to achieve these new criteria while making learning more accessible. Educational videos are currently a popular teaching method and are gradually becoming an essential part of the educational system (Bravo et al., 2011). Furthermore, educational videos have become an element of teaching materials used to give students knowledge, making learning processes more attractive for students to absorb effectively and maximally (Indrawati, 2021; Bravo et al., 2011; Hossain et al., 2008).

Considering the benefits of educational videos, the accounting educator created the educational video "Easy Step" on their initiative. The Easy Steps online video was designed to provide students with a simple and easy technique for determining cost classification by function, a subtopic of management accounting courses. It was also created in response to the problem that students not majoring in accounting had difficulty identifying the cost classification by function. Learning the accounting subject may be complex and difficult for students who do not major in accounting and for whom management accounting courses are not a core subject (Bakar et al., 2020). Accounting educators have discovered that the majority of non-accounting students are unable to correctly answer the cost classification by function question, resulting in low exam scores. Therefore, Easy Step was created to offer an easy step that provides a step-by-step cost classification by function to strengthen students' understanding of that

topic. Another motivation for creating Easy Step was that cost classification is a fundamental knowledge in management accounting courses that the student will apply in the next topic. Therefore, the student needs to strengthen their basic knowledge to excel in the next topic, which is more difficult and in-depth. The objective of creating the Easy Step video is to improve students' comprehension of cost classification by function, which will directly impact their scores.

DESIGN AND DEVELOPMENT OF THE PRODUCT

Costs are the expenses or expenditures incurred in generating a product or providing a service to customers. It can be classified in many ways. Cost classification is a fundamental concept in management accounting courses that refers to grouping costs according to similar criteria. There are many categories for cost classification, and function is one of them. Cost classification by function can be divided into two main functions, production and non-production. The production cost is any cost incurred during the manufacturing process, which might be a prime cost or a production overhead cost. Non-production cost, on the other hand, is a cost incurred unrelated to production activity. Administration, marketing and distribution, finance, and research and development are non-production activities. Due to the complexity and difficulty in comprehending the concept of its function, students have problems identifying the cost function. Therefore, Easy Step aims to provide students with an easy step by exhibiting a step-by-step technique for identifying cost classification by function.

The Easy Step online video will be shared with students once the cost classification by function teaching session is completed. Online video teaching is preferable to the traditional approach since it gives students the freedom to access the video anytime and anywhere. The video was developed at no cost and took approximately 7 minutes to view. Easy Step further boosts student interest because, in contrast to the conventional method of reading a book, the video is packed with attractive pictures, clear explanations, and great sound. The attractiveness and usefulness of the Easy Step were demonstrated when it garnered Gold and Platinum Awards at the Accounting Education Competition (AEC2021), which can be referred to in Figure 1.

Figure 1 Certificate of Award

Figure 2 Layout of Easy Step Video

The layout of the video is shown in Figure 2. The issue, aim, and purpose of creating the video are shown at the beginning to attract the student's interest. The following section discusses the definition of two main cost classifications: function, production, and non-production, using simple terminologies that students can easily understand. Then, it is followed by a simple explanation of the types of production costs and non-production costs. The video provides guidance on the simple step-by-step technique of classifying costs by functions. It illustrates the entire step of determining the cost classification by function, which includes three steps. The first step is to identify the core of the business, which is the product or service offered to customers. This is since defining the nature of the business is crucial because it determines the type of cost function. The second step is determining if the cost is associated with production or non-production activities. Costs are classified as either production or non-production costs depending on the company's products or services. If the cost is a production cost, the third step is determining whether it is a prime cost or a production overhead cost. Suppose the cost is judged to be non-production overhead. In that case, students must apply the same procedure as in step three to identify which activities are involved, such as administration, finance, selling, and distribution, or research and development. Seven examples of cost scenarios are then thoroughly discussed to boost the student's understanding. Different scenarios are presented to demonstrate how the cost function is determined. To evaluate their comprehension, the video was accompanied by an exercise with a total score of 40 marks that the student was required to complete.

NOVELTY OF THE PRODUCT

The concept used is unique as it serves its own purpose to increase students' understanding in understanding topic on cost classification. The video is packed with interesting, colourful images that keep students easily engaged in learning that topic. Online video teaching is preferable to the traditional approach since it gives students the freedom to access the video anytime and anywhere.

RESULTS OF A STUDY ON EASY STEP

Table 1 summarizes the details of the students involved in the Easy Step project. The video was reviewed by 105 non-accounting students enrolled in management accounting courses at the UiTM Negeri Sembilan, Seremban campus. Out of 105 students, 73.3% of students were female. Students from the CS112 programme dominated 53%, followed by students AM110 with 20%, and AM225 and CS249 with 16.2% and 10.5%, respectively. 26.7% of students were pursuing a diploma, while the remaining 73.3% were pursuing a degree. Students were required to answer exercises regarding cost classification by function at the end of the video presentation to evaluate their understanding of the topic. The results were satisfactory and indicated that students understand the cost classification topic well. 38.1% of students scored between 30 to 34 marks, 22.9% between 20 to 24 marks, 17.1% between 35 to 40 marks, 15.2% scored 25 to 29 marks, and the remaining students only managed to score below 20 marks. It reveals that 56.2% of students who viewed the video obtained marks of 30 or above, while just 6.7% received marks of 20 or lower. Thus, it indicates that watching the video can boost students' understanding and marks.

Table 1
Results of a study on Easy Step

Participant Characteristics	Sub-Profile	Frequency	Percentage
Gender	Male	28	26.7
	Female	77	73.3
Programme	AM110	21	20
	AM225	17	16.2
	CS112	56	53.3
	CS249	11	10.5
Education level	Degree	28	26.7

	Diploma	77	73.3
Score marks	35 – 40 marks	18	17.1%
	30 – 34 marks	40	38.1%
	25 – 29 marks	16	15.2%
	20 – 24 marks	24	22.9%
	Below 20 marks	7	6.7%

CONCLUSION

The Easy Step video was created as a reaction to current advancements in educational technology since it offers another teaching technique**.** It provides step-by-step guidelines in identifying the classification cost by function, which students found to be a challenging topic to comprehend. The video can complement the existing textbook by boosting students' understanding of the subject. In contrast to the traditional method of reading the textbook, this approach is intended to enhance students' understanding of the cost classification being taught. Furthermore, because it is an online video, students may view it anytime and wherever they choose, which is convenient for them. Moreover, based on the results of the exercise the student was required to do, they scored more than 30 out of 40. Thus, this indicates that the Easy Step video can strengthen student understanding and improve their grade. The attractiveness and usefulness of the Easy Step were demonstrated when it garnered Gold and Platinum Awards at the Accounting Education Competition (AEC2021). In addition to the students at the UiTM Seremban campus, it is recommended that Easy Step be introduced to the students from other campuses who enrolled in management accounting courses.

REFERENCES

Anastasiadis, T., Lampropoulos, G., & Siakas, K. (2018). Digital game-based learning and serious games in education. *International Journal of Advances in Scientific Research and Engineering*, *4*(12), 139-144. https://doi.org/10.31695/IJASRE.2018.33016

Bakar, M. A. A. A., Amirul, S. M., Ripain, N., Ab Fatah, N. S., & Bosi, M. K. (2020). A preliminary analysis of non-accounting students' perception towards introductory accounting courses among private institutions in Sabah. *Malaysian Journal of Business and Economics (MJBE)*.

Bravo, E., Amante, B., Simo, P., Enache, M., & Fernandez, V. (2011, April). Video as a new teaching tool to increase student motivation. In *2011 IEEE global engineering education conference (EDUCON)* (pp. 638-642). IEEE.

Hossain, M., Heagy, C. D., & Mitra, S. (2008). Perceptions of non-accounting business majors about the managerial accounting course. *Review of Pacific Basin financial markets and policies*, *11*(04), 569-590.

Indrawati, C. D. S. (2021). The Effectiveness of Archiving Videos and Online Learning on Student's Learning and Innovation Skills. *International Journal of Instruction*, *14*(4), 135-154.

18

POS-UP : Learning Parts of Speech Using Poems

[1] Muhamad Izzat Rahim, [2] Dzeelfa Zainal Abidin, [3] Sharifah Sheha Syed Aziz Baftim

Akademi Pengajian Bahasa
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah

[1] izzatrahim@uitm.edu.my, [2] dzeelfa@uitm.edu.my, [3] sharifah@uitm.edu.my

ABSTRACT

Many language learners face difficulties in applying and using the parts of speech in a given situation. It has become a challenge for teachers to navigate a grammar lesson that can help learners to understand and apply the concepts in the most suitable way. Thus, POS-UP (Parts of Speech Using Poems) is designed to allow language learners to practise using the most suitable parts of speech in a sentence, as well as learn new words that are introduced in the game. POS-UP is a game which provides players with the opportunity to learn parts of speech using poems written by local writers. In this game, language learners are required to complete a poem in the fastest time, by using words with the correct parts of speech. In making sure that this game reaches the level of satisfaction of the players, a survey is carried out to find out the perceptions of English language learners towards POS-UP. The result of the survey shows that learners who play this game find it enjoyable and helpful in increasing their grammar and vocabulary skills. Respondents also provided some suggestions on improving the game. The results have provided researchers with useful inputs in making the game a more practical and useful one for players. It is hoped that POS-UP will be a valuable tool in teaching and learning parts of speech, as well as allowing players to be more appreciative of local poems.

Keywords: POS-UP, poems, parts of speech, game

INTRODUCTION

Language teaching and learning continue to be areas that are looked into to address issues that arise especially in the second language setting (Brown, 2000). Teachers and researchers identify problems in language learning then come up with ways to effectively deal with them. One approach is to use language games (Ibrahim, 2017). Although the idea of language games in language teaching have been around for quite a while, the educational benefits they offer are still proven to enhance students' learning of a language (Klimova, 2015).

With that belief, a language game called POS-UP is created. POS-UP, which stands for Parts Of Speech Using Poems, is a game that uses local poems to help students develop their understanding of parts of speech. Consisting of a roulette, four decks of word strips (blue, green, red & yellow decks) and a few poem cards, this game (Figure 3) requires language learners to complete a poem in the fastest time, by using words with the correct parts of speech. Using poems means the "small l" or the use of literature in the language classroom is also being practised. The "small l" promotes the two-pronged approach of learning the language and at the same time exposing students to the beauty of the language that literature has to offer. This technical paper explains the basic concepts of POS-UP which is hoped to shed some light on the purpose of its creation.

The objectives of POS-UP are as follow:

a. To allow language learners practice using the most suitable parts of speech in a sentence.
b. To help learners improve their vocabulary skills.
c. To provide a channel for learners to appreciate local poems

Based on the aforementioned objectives, POS-UP was created as a language learning board game. The intended audience for POS-UP is language learners, especially the beginners.

DESIGN AND DEVELOPMENT OF THE PRODUCT

Teaching grammar to learners of the 21st century can be a challenging task for the language instructors. Relying solely on textbooks is not the best way to teach grammar since textbooks lack a variety of communicative tasks that cater to students' needs in real life situations (Akbari, 2015). Thus, different approaches to teaching grammar are created in providing a more interesting and effective lesson for students to ensure better understanding in the usage of grammar. Parts of speech is one grammar aspect that has become challenging for students to deal with as they find it difficult to distinguish the most suitable parts of speech and use them in the most appropriate manner (Paris & Yussof, 2012).

The use of literary texts in language teaching has been practised by many language teachers since the 20th century. It is found to be a valuable material in motivating students to interpret and process information in language learning (Shazu, 2014).

Therefore, in POS-UP, the use of local poems serves as the novelty of this product, as it provides a different perspective to the users of the game. As local poems are filled with many real-life situations and scenarios of the Malaysian culture and lifestyles, they serve as a refreshing outlook for language learners to improve on their knowledge and application of parts of speech.

The use of educational language games has proven to be beneficial for students (Cerqueiro & Castro, 2015). POS-UP is found to be useful in improving the skills of language learners in using parts of speech in the most suitable manner.

The current POS-UP is the result of continuous development based on the data collected from users of the board game. In total, POS-UP went through three versions. In the first version, the researchers developed POS-UP using recycled materials such as cardboards from boxes, coloured papers and plastic containers. The concept of the board game was agreed on and later the parts of the board game were developed manually. At the beginning stage, POS-UP had three main parts namely the poem board, roulette and word strips, all made with recycled materials. Figure 1 illustrates the first version of POS-UP.

Figure 1 First version of POS-UP

The second version of POS-UP was developed six months after the first version came into being. At this stage, students were introduced to POS-UP in order to collect valuable feedback from their experience playing the board game. Expert help was required to design and create a properly functioning board game with attractive features. For the second version, the board game consists of proper materials such as a battery-powered roulette, handheld white boards and magnetic papers. All these parts were stored in a custom made box with a POS-UP logo printed on it. (see Figure 2).

Figure 2 Second version of POS-UP

The latest version of POS-UP was created a year after the second POS-UP was introduced. Similar to the previous process, the third version was developed using data and feedback collected from users as well as experts who have been introduced to POS-UP. For the third version, the handheld whiteboards were replaced with glossy papers. The reason to do so was to make the entire board game more portable. No changes were made to the other parts of the board game. The third version of POS-UP is shown in Figure 3.

In total, it took two years to develop the current version of POS-UP. Each version is seen as an upgrade from the previous version. Although changes were made in the process of development, the objectives of POS-UP remain the same. In terms of cost, the researchers spent RM300 to create POS-UP. The cost includes the designer fee and the purchase of materials proposed by the designer. Currently, the board game is stored at the Academy of Language Studies, Universiti Teknologi Mara (UiTM) Negeri Sembilan, Kuala Pilah campus.

Figure 3 Latest version of POS-UP

The three main components of POS-UP are the poem cards, the five decks of coloured word strips, a timer, and a roulette. The poem cards feature poems by local poets. A timer is also included to limit the playing time of each participant. The roulette is battery-powered which can easily be operated by pushing its button. Lastly, the decks of coloured word strips consist of words that belong to the various parts of speech to be used to complete the poems on the poem cards.

POS-UP is a game which provides players with the opportunity to learn parts of speech using poems written by local poets. In this game, language learners are required to complete a poem in the fastest time using words with the correct parts of speech. This game is unique in its own way as it helps individuals to learn parts of speech in a creative and fun way, and at the same time appreciate the works of local poets. It is useful in improving the skills of language learners in using parts of speech and enrich their vocabulary.

NOVELTY OF THE PRODUCT

The use of literary texts in language teaching has been practised by many language teachers since the 20th century. Literary texts are found to be valuable material in motivating students to interpret and process information in language learning (Shazu, 2014).

Therefore, in POS-UP, the use of local poems serves as the novelty of this product. As local poems are made up of situations and scenarios of the Malaysian culture and lifestyles, they serve as a relatable and non-threatening material for local learners to improve their knowledge and application of the parts of speech, as opposed to using foreign poems.

The novelty of POS-UP is teaching students the usage of language and at the same time exposing local poems to the users. In a way, POS-UP tries to relate the tenet of language (part of speech) with real life text. This way, users can reap more benefits than just learning part of speech.

COMMERCIALISATION POTENTIAL OF THE PRODUCT (OPTIONAL)

The use of educational language games has proven to be beneficial for students (Cerqueiro & Castro, 2015). POS-UP is found to be useful in improving the skills of language learners in using parts of speech. It is also useful in assisting individuals to improve their vocabulary skills. From a survey given to students after they utilised the game (Table 1), it was found that 87.5% of them strongly agreed that they learned how to use parts of speech more effectively. Similarly, 6.25% of the students stated that they agreed with the statement. Only 6.25% of the students were not sure when asked about the statement on POS-UP. For the second statement, all students agreed that they learned new words via POS-UP. From Table 1, it can be seen that 6.25% students agreed with the statement while 93.75% stated that they strongly agreed with the statement.

Besides, the game provides a path in encouraging cooperative learning, as players work in groups or pairs that allow them to take part and assist each other to win the game (Cerqueiro & Castro, 2015). It was observed by the researchers that students were discussing the answers diligently as they played the game. This process provided them the experience of cooperative learning.

Table 1
Usefulness of POS-UP 1

Statements	Strongly disagree (%)	Disagree(%)	Not sure (%)	Agree (%)	Strongly agree (%)
I can learn how to use parts of speech from this game	0	0	6.25	6.25	87.5
I learn new words from this game.	0	0	0	6.25	93.75

In addition, POS-UP allows individuals to learn parts of speech in a creative and fun way, and at the same time acknowledge the works of local poets. Table 2 shows that the majority of the students either agreed (25%) or strongly agreed (68.75%) about having fun while utilising POS-UP. Only a small percentage of the students (6.75%) was not sure about the statement. In terms of learning to appreciate local poems, all students responded positively where 25% chose to agree while 75% chose to strongly agree with the statement. (Refer Table 2).

Table 2
Usefulness of POS-UP 2

Statements	Strongly disagree (%)	Disagree (%)	Not sure (%)	Agree (%)	Strongly agree (%)
I had fun playing POS-UP	0	0	6.25	25	68.75
I learn to appreciate local poems	0	0	0	25	75

This game has a high potential for commercialisation as it is marketable as a board game for the general public. This is due to the fact that 56.25% of the students who utilised POS-UP strongly agreed that the design of the game was interesting and attractive (Table 3). Similarly, a large percentage of the respondents (43.75%) chose to agree with the same statement in Table 3. This can contribute to the marketability of the product to schools and higher learning institutions as a tool in the teaching and learning of parts of speech.

All in all, it can be said that the majority of the students who had the experience to use POS-UP provided positive feedback towards the board game. This is seen as a significant input for the researchers to improve POS-UP in the future.

Table 3
Usefulness of POS-UP 3

Statements	Strongly disagree (%)	Disagree (%)	Not sure (%)	Agree (%)	Strongly agree (%)
The design of POS-UP is interesting	0	0	0	43.75	56.25

In the three years since its existence, POS-UP has received a number of recognitions from several qualified bodies. First, POS-UP was awarded the bronze medal by Universiti Teknologi MARA in 2018 through the Invention, Innovation and Design Exposition 2018 (iiDEX 2018). POS-UP went on to bag the silver medal at the Language Innovation, Invention and Design 2018 (LIID 2018) organised by the Academy of Language Studies, UiTM Shah Alam. In 2019, POS-UP managed to earn another silver medal in the Invention, Innovation and Design Exposition 2019 (iiDEX 2019).

Moving forward to commercialise POS-UP, the researchers have applied for voluntary notification to Perbadanan Harta Intelek Malaysia (MyIPO) in order to safeguard the intellectual property of POS-UP. The process was done via the assistance of the Research Management Centre of UiTM.

References

Akbari, Z. (2015). Current challenges in teaching/learning English for EFL learners: The case of junior high school and high school. *Procedia - Social and Behavioral Sciences*,199 (2015), 394 - 401. doi: 10.1016/j.sbspro.2015.07.524

Brown, H. D. (2000). Principles of language learning and teaching. New York: Longman.

Cerqueiro, F.F. & Castro, M.C. (2015). Board-games as review lessons in English language teaching: useful resources for any level. Docencia e Investigación, 25, 67-82. Retrieved from https://revista.uclm.es/index.php/rdi/article/download/1009/838

Ibrahim, A. (2017). Advantages of using language games in teaching English as a foreign language in Sudan basic schools. *American Scientific Research Journal for Engineering, Technology, and Sciences*. 37(1), 140-150. Retrieved from https://asrjetsjournal.org/index.php/American_Scientific_Journal/article/view/3508

Klimova, B.F. (2015). Games in the teaching of english. *Procedia - Social and Behavioral Sciences*,191 (2015), 1157 – 1160. doi: 10.1016/j.sbspro.2015.04.312

Paris, T.N.S.T. & Yussof, K.L. (2012). Enhancing Grammar Using Board Game. *Procedia - Social and Behavioral Sciences*, 68 (2012), 213 – 221. doi: 10.1016/j.sbspro.2012.12.221

Shazu, I.R. (2014). Use of literature in language teaching and learning: a critical assessment.

Journal of Education and Practice, 5(7), 29-35. Retrieved fromhttp://iiste.org/Journals/index.php/RHSS/article/view/12444

19

Incorporating Powtoon as a Learning Activity into an Economics Course

Hafisah Yaakob
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
hafisah@uitm.edu.my

Jamilah Mohd Mahyideen
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
jamilah@uitm.edu.my

Siti Rohana Daud
Universiti Teknologi MARA Cawangan Melaka
Kampus Alor Gajah
sitirohanadaud@uitm.edu.my

Jumaelya Jogeran
Universiti Teknologi MARA Cawangan Melaka
Kampus Alor Gajah
jumaelya749@uitm.edu.my

ABSTRACT

Most workday activities were altered digitally when the World Health Organization announced the COVID-19 pandemic in March 2020. Since then, online learning strategies and digital teaching resources have taken the place of traditional teaching strategies in educational institutions. For usage as a teaching tool by academicians instructing economics classes, the PowToon app is used. Furthermore, since the videos are uploaded to the lecturer's YouTube channel, they are accessible and compatible with online learning methods. By utilising internet technologies and applications, this video production aims to make economic concepts more convenient and understandable as well as more enjoyable, feasible, interesting, participatory, and accessible for everyone. This video was made for diploma and degree students. It simplifies lecturers' explanations and helps students understand the theory.

Keywords: Economics; PowToon; Video; engaging; online learning.

INTRODUCTION

The various learning modes of students necessitate the development of various learning materials for effective learning. The current learning process can make use of instructional media based on information and communication technology; many applications, such as PowToon, Impress, and Prezi have been developed and can be used as learning media. PowToon can be used to create engaging, creative presentations that capture attention for educational assessment and content delivery. PowToon uses slides to which text and images can be added, and it also allows animation and the incorporation of sound or music, available in the same application or through an external source. These online visual presentations are a fast and eye-catching way to deliver information to diverse audiences within a very short time.

The economics course is one of the disciplines that incorporates many ideas and calculations. Students who study this topic will develop a sense of boredom, and their lecturers will find it increasingly difficult to pique their interest in other economic topics. Therefore, to attract students, an effort has been made to create different learning delivery methods so that they are provided in a manner that is easier to grasp. The objectives are to accomplish the following goals:

a. To make sure that education services and different ways to teach can be made available anywhere.
b. To use technology and other web apps to make them more fun, easy to use, interesting, interactive, and accessible.

Various research on application-based learning media has been studied by many previous researchers. Shiu et. al (2020) did a comparison to traditional written text in terms of their impact on learning outcomes and found that video is an effective alternative to text materials. Razi (2021) conducted research on the impact of students' learning outcomes using the PowToon learning media. Students are very enthusiastic about participating in learning, as evidenced by their active participation in asking questions, answering questions, and taking post-tests. According to Rioseco et al. (2017), a significant portion of students—mostly female ones—view PowToon as a stimulating tool for making animated and video-based interactive content. In general, the study's findings on the use of PowToon were encouraging, not just from the perspective of motivation but also in terms of how it helped students acquire new material and hone ICT-related skills.

DESIGN AND DEVELOPMENT

Content

Its content is drawn from textbooks for the course Principles of Economics (ECO120), Macroeconomics (ECO211), and Economics (ECO415). The language used in this video is simple enough for students to understand the topic.

Video

This video is produced using the PowToon application. Videos are designed with appealing images and animations. In addition, gentle music is performed to enhance the video's appeal. While the video is not too long to prevent the students from becoming bored. Lecturers might alter the activities they choose and how they are delivered by modifying the pace or the activity's level of difficulty (Rahmawati, 2021). This video should last about 2-5 minutes on average.

Medium and Channel

This video is available on the lecturer's YouTube page. The video link will be shared by the lecturer via a WhatsApp group. Comments from students can be delivered directly to the lecturer, where students can express their thoughts and ideas on the video via WhatsApp (Izyani, 2016). Students are urged to use the comment section to ask questions or make comments. The lecturer will answer questions based on the comments to ensure students understand the topic presented.

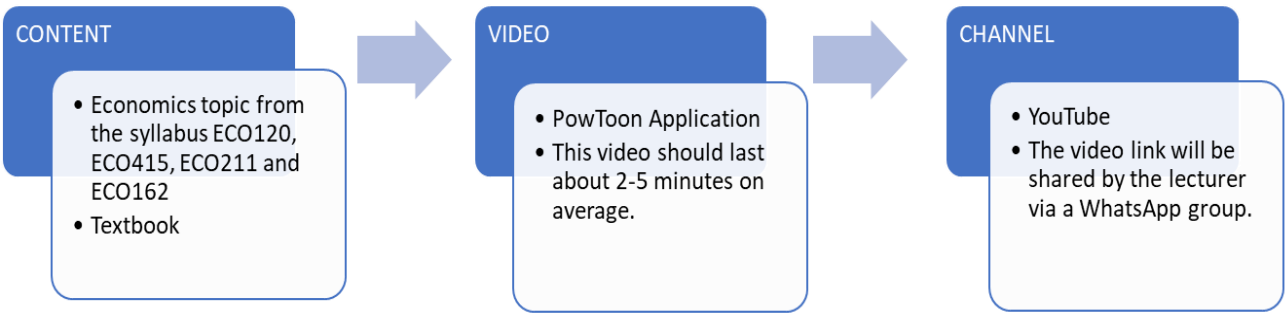


Figure 1 Instructional Design of the Video

The following are the screenshots of the video designed and developed by using PowToon App.

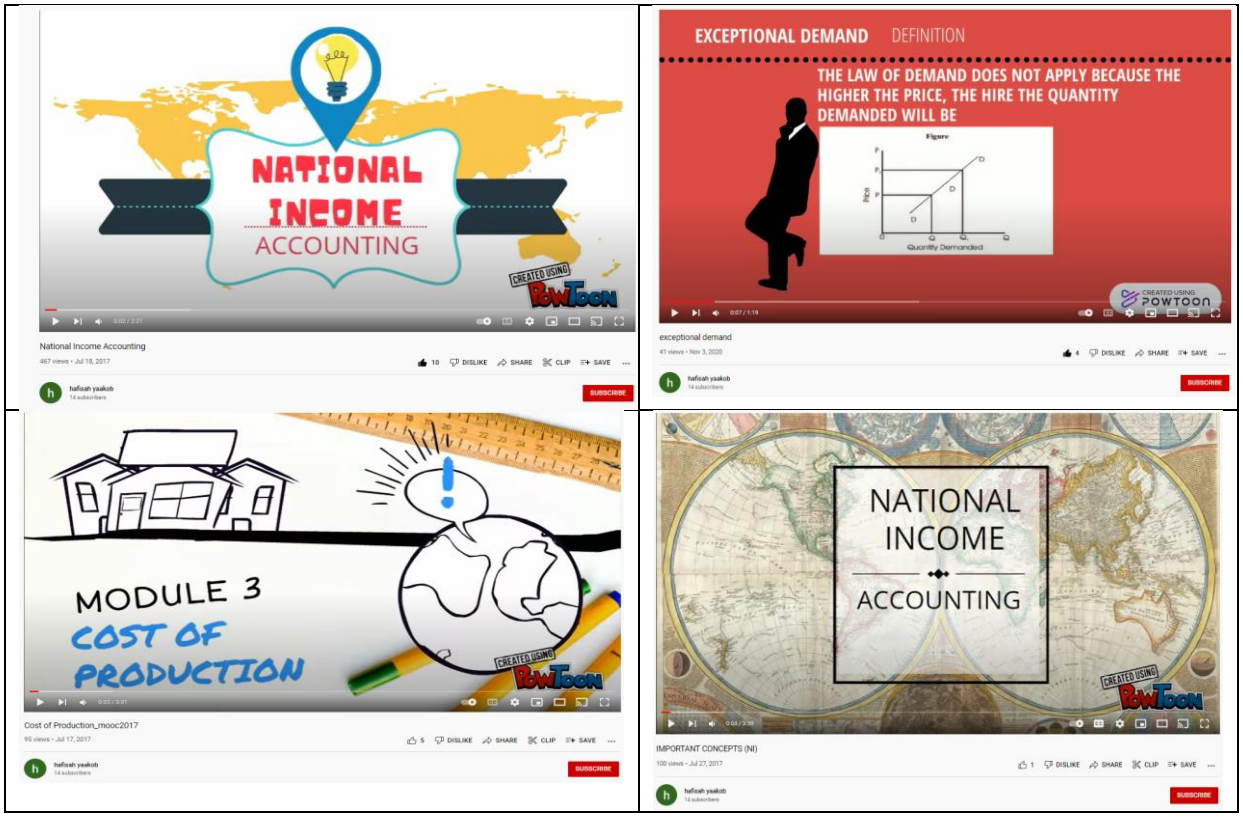


Figure 2 Screenshots of the video by using PowToon App

NOVELTY OF THE PRODUCT

This video can increase engagement by adding a fresh new twist to the lesson of economics. It also integrates technology into the learning process to engage students and keep their attention. PowToon enables us to animate presentation slides so that they appear as a video.

REFERENCES

Azhar Arsyad. (2016). Media Pembelajaran. Jakarta: PT Raja Grafindo Persada.

Binti Mistar, I., & Embi, M. A. (2016). Students 'perception on the use of WhatsApp as a learning tool in ESL classroom. *Journal of Education and Social Sciences*, *4*(6), 96-104.

Nurdiansyah, E., El Faisal, E., & Sulkipani, S. (2018, November). Utilization Of Powtoon To Improve Student Learning Outcomes at Citizenship Education Course. In *Sriwijaya University Learning and Education International Conference* (Vol. 3, No. 1, pp. 627-630).

Rahmawati, E., Saefullah, H., & Sumarta, S. (2021). The Pre-service EFL Teachers' Voices on Designing and Implementing Lesson Plan for Online Learning. *Edumaspul: Jurnal Pendidikan*, *5*(2), 728-738.

Razi, U. (2021). The Effect of Using Powtoon on Students' Learning Outcomes. *International Journal of Learning and Instruction (IJLI)*, *3*(2), 94-102.

Rioseco, M., Paukner-Nogués, F., & Ramírez-Muñoz, B. (2017). Incorporating powtoon as a learning activity into a course on technological innovations as didactic resources for pedagogy programs.

Shiu, A., Chow, J., & Watson, J. (2020). The effectiveness of animated video and written text resources for learning microeconomics: A laboratory experiment. *Education and Information Technologies*, *25*(3), 1999-2022.

Yaakob, H., Daud, S. R., Jogeran, J., Othman, S., Suhaime, I. L., & Sehat, N. S. (2021). Effective video learning: the theory of exceptional demand.

20

Classpoint: Bridging Online Class Communication

[1] Maziah Mohamed Arif, [2] Hafisah Yaakob, [3] Jamilah Mohd Mahyideen,
[4] Zaidatulhusna Mohd Isnani

Faculty of Business Management
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] maziahma@uitm.edu.my, [2] hafisah@uitm.edu.my
[3] jamilah@uitm.edu.my, [4] husna@uitm.edu.my

ABSTRACT

The pandemic COVID-19 has created an opportunity for all educational systems and processes to be more outstanding with many new expectations to challenge a new era of interactive learning outcomes. The challenge that lecturers face is in providing teaching materials that must be interactive as well as motivating students for the learning session. Thus, the various initiatives that need to be taken by educators in guaranteeing the quality of learning and teaching will achieve the goals that have been targeted by the university, especially in the era of new norms in our national education industry. Therefore, ClassPoint Application has become one of the interactive choices among lecturers in ways to make a two – way communication has an interesting impact on their learning sessions.

Keywords: Interactive learning; ClassPoint Application.

INTRODUCTION

Interactive learning is a critical and fundamental component for acquiring knowledge and developing both cognitive and physical skills. Interactive learning can be defined as the ability to participate and learn through discourse, action, or conversation. Akhmedov et al. (2020) defined interactive learning as the interaction between student and teacher and between students. Simply put, an "interactive" method is one in which the learner is treated as a participant and is required to complete specific tasks. He actively participates in what is going on rather than simply listening or observing, and he appears to be the driving force behind it all (Suvorova, 2001).

The effectiveness of the use of interactive technologies has been noted by many past studies. A study on the usage of interactive PowerPoint learning materials by seventh-grade students at Berastagi Private Middle School in Indonesia was conducted by Tarigan et al. (2022). According to the study, interactive learning media use positively impacted students' motivation to learn, which was in line with the findings of Winiarti et al. (2018). In addition, the study also found that there is a substantial difference in value before and after the usage of interactive learning medium, as demonstrated by a rise in student scores. A prior study by Kusuma et al. (2017) shown that interactive learning media were more successful in enhancing student learning outcomes. Additionally, Yulia Novita et al. (2016) demonstrate that the usage of interactive learning media improves student learning mastery and raises student test results. The overall findings of this study show that the use of interactive learning media has been demonstrated to be successful since it can raise students' learning motivation and raising their academic performance.

CONTENT

PowerPoint has been used extensively throughout all the lecturers' presentations. Most of the time, lecturers will use short slides with minimal animation. Other forms of instruction, such as jokes, storytelling, or role-playing, can supplement the PowerPoint slides. Students, like lecturers, are ecstatic to be a part of the class. The COVID-19 crisis has caused worldwide higher learning institutions to halt all regular learning practices and activities due to public safety concerns (Muftahu, 2020). Lecturers are required to use online distance learning to teach their students. Due to the pandemic, the traditional method of instructing students using simple PowerPoint has been deemed ineffective. Lecturers are frequently isolated and disengaged with their students. Both the lecturer's strengths and weaknesses as a teacher are readily apparent to the class.

The educational delivery system must remain relevant and intact despite any challenges. Therefore, creative interventions and methods are required since change appears to be unavoidable (Seville et al., 2012). As a solution, the use of PowerPoint can be integrated with the ClassPoint application to make the learning process in the classroom more engaging and interactive. ClassPoint applications are suitable for any teaching-learning device. Using ClassPoint App, students can also participate actively in classroom activities. Additionally, it requires a simple application to install, run, save, and evaluate the data from learning activities.

Since ClassPoint App is integrated with the Microsoft PowerPoint platform, lecturers can interact with students by inserting any of the five question slides and integrating the slides into existing PowerPoint note slides. In this way, lecturers do not have to make a separate PowerPoint file for student engagement. One of the cool features of ClassPoint is it is also suitable on any teaching or learning device such as a laptop, tab, or handphone. Secondly, getting started to ClassPoint is easy as it just requires four (4) steps to open the ClassPoint browser (https://www.classpoint.io): (1) Click the Free download button; (2) Sign Up for a new account using Google email; (3) Download and (4) Install. Once downloaded, *Inknoe ClassPoint* tab is integrated with the PowerPoint menu tab ribbon (*see Figure 1*). Thirdly, students do not have to download any application, they just click the link and Code provided by the lecturer to join the session from their handphone, laptop or tab. Lastly, special features for educators are: Live Quiz Competition, Quick Poll /Pick – a – Name, Annotate PowerPoint, Whiteboard in PowerPoint, and Save & Review Answers.

This application gives lecturers the opportunity to ask basic five (5) types of questions (*Interactive Quiz*) consisting of Multiple Choice, Word Cloud, Short Answer, Slide Drawing, and Image Upload. The lecturer may use these five interactive slides throughout a lesson. A suggestion, the lecturer can ask questions about students' feelings at the beginning, ask about previous lessons, run a Live Quiz Competition, do a Quick Poll /Pick – a – Name, Annotate PowerPoint, use Whiteboard in PowerPoint and review answers with students at the end of lessons. All is possible and never a dull moment with the ClassPoint interactive quiz.

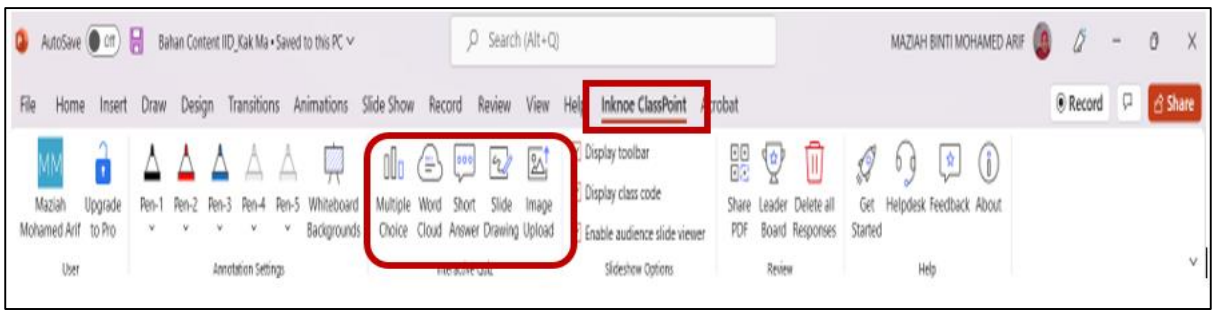


Figure 1 Screenshot of Inknoe ClassPoint integrated with PowerPoint

Figure 1 show how to start ClassPoint. The lecturer can open the ClassPoint browser (https://www.classpoint.io); Click the Free download button; Sign Up for a new account using Google email; Download and Install. Once downloaded, *the Inknoe ClassPoint* tab is integrated with the PowerPoint menu tab ribbon. When clicking on "Inknoe ClassPoint", a line of toolbar such as User, Annotation, Interactive Quiz, Slideshow Options, Review & Help will appear. The Whiteboard Background can be customized.

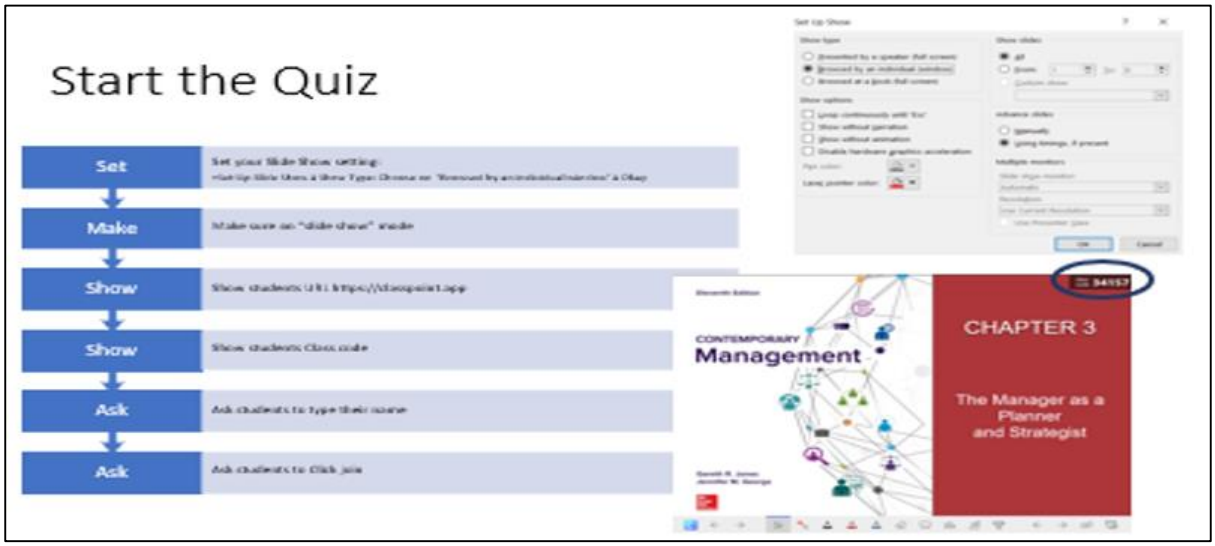


Figure 2 Screenshot of setting the quiz/question

Figure 2 explains how to set a quiz or question. The lecturer needs to set up a slide show type; 'Browsed by an individual window'. Then, the lecturer must set the slide show mode and show students the URL https://classpoint app. Using this link, lecturers need to show students class code; students will type their name and click join to ensure that they participate in online class.

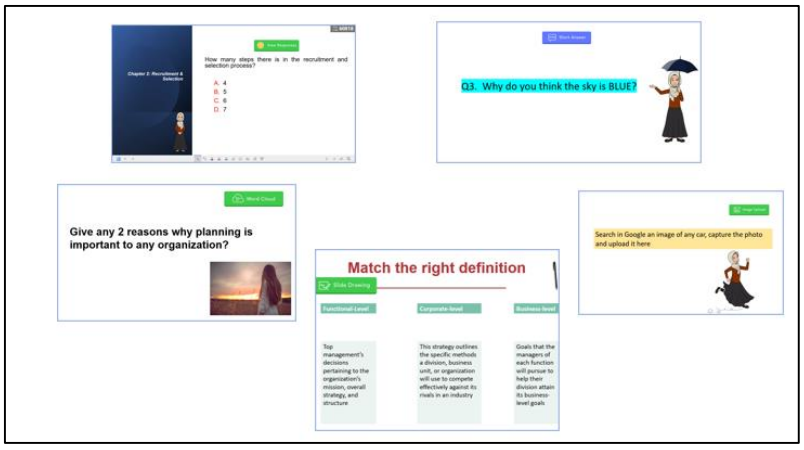


Figure 3 Screenshot of the ClassPoint Interactive Quiz seen by both lecturer and students

Figure 3 shows the screenshot that can be seen by both lecturer and students. One of the advantages of using ClassPoint is, students can have the same view as the lecturers on students' devices. Students can answer the questions by using the menu bar on their devices. For example, if the question is a multiple choice, students can choose to answer A,B,C, or D by clicking on the available button on their devices and submitting the answer online. Lecturers will get the answer, which is transmitted to their PowerPoint slides via ClassPoint, and make a review on a live session.

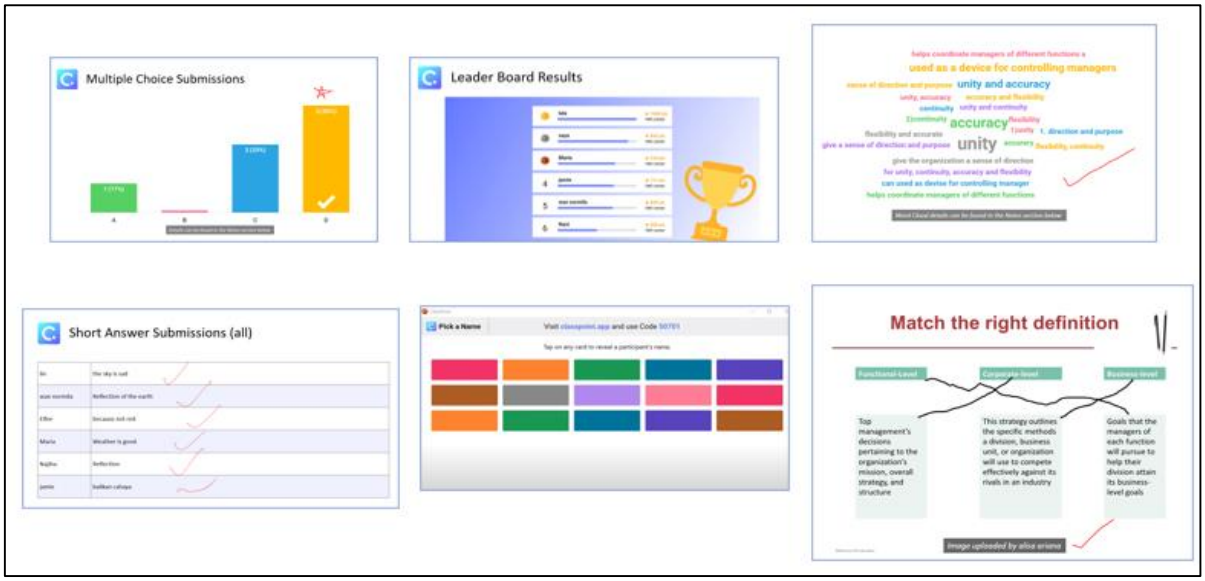


Figure 4 Screenshot of Lecturer's review questions on ClassPoint Interactive Quiz

Figure 4 shows that the lecturer can review questions on ClassPoint Interactive quiz. Lecturers can show the students answers either by inserting slides or saving for review. In addition, lecturers can make annotations while checking and discussing students' answers while delivering their lectures on PowerPoint. All these can be done on live sessions.

Having discussed the features of Classpoint, it is evident that this app can bridge online class communication in terms of student engagement. Students' engagement or feedback is an element crucial for a two – way communication. By having students' feedback in a live session, it makes the communication more effective and efficient. Student engagement is crucial during online teaching as gauging student understanding proves to be more difficult than classroom teaching. We will be able to plainly see how students are remembering and understanding the material if we actively engage them. Being on the same page as the students is possible with ClassPoint. Although there are alternative apps, such as whiteboards, many of them are only accessible to lecturers and have relatively few student-friendly features. Here, lecturers can ask students specific questions to gauge their level of participation. Students who are having difficulties and require more support can readily be identified by lecturers and helped.

NOVELTY OF THE PRODUCT

Getting engagement in tertiary education can be a struggle for many educators. ClassPoint App has many positive novelties to assist in two–way communication in the online classroom. The first novelty of the ClassPoint app is it is easy to use. Those who have used PowerPoint, now with the extension of the ClassPoint app, can directly not only deliver lectures but also make competition among students, test students' understandings and make quick and straightforward assessments. And all these can be done during live sessions. The experience of using ClassPoint is excellent because students, too, can benefit. The students love it because they can engage in giving answers to questions or quizzes, compete with classmates, and get answers on the spot. When a poll was taken after a lesson on the subject of ENT530 (Principles of Entrepreneurship) using ClassPoint, twenty-five (25) students were asked two fundamental questions:

a. Do you like using ClassPoint, yes or no?
b. Would you like to use ClassPoint again, yes, or no?

All students gave positive feedback (yes) to both questions. Further studies can be made from this poll in the future. One feature provided by ClassPoint is image upload. This feature is handy for students learning science and mathematics topics who can also use it. Students can easily use the drawing toolbar to draw, make calculations, graphics, designs, capture an image from Google, etc., and upload it for lecturers to review.

REFERENCES

Akhmedov, B. A., Majidov, J. M., Narimbetova, Z. A., & Kuralov, Y. A. (2020). Active interactive and distance forms of the cluster method of learning in development of higher education. *Экономика и социум*, *12*(79), 805-808.

Merta Dhewa Kusuma, Undang Rosidin, Abdurrahman & Agus Suyatna (2017). The Development of Higher Order Thinking Skill (HOTS) Instrument Assessment in Physics Study. Journal of Research & Method in Education (IOSR-JRME), Vol 7, No 1.

Muftahu, M. (2020). Higher education and COVID-19 pandemic: Matters arising and the challenges of sustaining academic programs in developing African universities. *International Journal of Educational Research Review*, *5*(4), 417-423.

Seville, E., Hawker, C., & Lyttle, J. (2012). Resilience Tested: A year and a half of 10,000 aftershocks.

Suvorova, N. (2001). Interaktivnoe obuchenie: Novye podkhody [Interactive learning: New approaches]. Innovations in Education, 5, 106–107.

Tarigan, G. H. M., Telaumbanua, S., Siburian, P., & Trisnton, T. (2022). The Effectiveness Of Interactive PowerPoint Learning Media Towards The Motivation Of Learning To Write Pantun For Class VII Students Of The Masehi Private Junior High School Berastagi 2021/2022. *International Journal of Educational Research & Social Sciences*, *3*(4), 1480-1497.

Winiarti, S., Astuti, N. R. D. P., & Yuliansyah, H. (2018). Pelatihan Pengelolaan Materi Pembelajaran Dengan e-Learning Bagi Sekolah Muhammadiyah Di Kecamatan Moyudan, Kabupaten Sleman. *Jurnal Pemberdayaan: Publikasi Hasil Pengabdian Kepada Masyarakat*, *2*(2), 211-220.

Yulia Novita, Salmiah & Ayu Isnaeni Savaroza (2016). The Effect of Adversity Quotient toward Students' Learning Motivation in Economics at the State Senior High School of 2 Siak Hulu. Perspektif Pendidikan dan Keguruan, Vol XII, No. 1, April 2021. Pp.10-14

21

Step-by-Step Guide and Practice for SQL Accounting Software

Amariah Hanum Hussin
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
amariah@uitm.edu.my

Salwa Muda
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
salwa542@uitm.edu.my

Siti Mariam Abdul Halim
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
siti819@uitm.edu.my

Raziah Bi Mohamed Sadique
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
razia350@uitm.edu.my

Musliha Musman
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
musliha5468@uitm.edu.my

ABSTRACT

Accounting Information System (AIS615) course offered to non-accounting students from the Faculty of Computer and Mathematical Sciences to enable students to enhance their job marketability after graduation. The syllabus content in Accounting Information System (AIS615) would allow students to gain real-life experiences whereby students will be given a real-life business activity scenario, and they are required to identify the business's flaws and recommend a possible solution to improve the business practices. Other than that, students will be equipped to prepare computerised financial statements. Prior to the year 2020, UBS accounting software had been used in AIS615 for more than five years. However, starting the year 2020 onwards, the Faculty of Accounting has decided to change to new software, namely: SQL Accounting Software, to meet the current changes in technology and business demand. SQL software is accounting software suitable for small businesses up to large organisations. Since the new software has been used recently, the learning of the software was carried out with limited resources. Hence, the objective of preparing a step-by-step guide and practice for SQL Accounting Software is to provide an appropriate guideline on how to learn the software. This guideline is essential to assist students, especially during this pandemic, when physical face-to-face class is impossible. Perhaps, this initiative will enhance students' knowledge and understanding amid the COVID-19 limitation.

Keywords: Accounting Information System (AIS), Online Distance Learning (ODL)

Introduction

The outbreak of COVID-19 caused the technical factor to be one of the most critical factors in ensuring the successful implementation of e-learning systems. Hence, the readiness of physical equipment, such as computers, servers, and communication networks, is necessary to implement e-learning (Qiao et ell., 2021). Moreover, (Almaiah et al. 2020) stated that the availability of software applications and operating systems are also important. The critical needs of 5G services and the Internet of Things (IoT) provide better indoor connectivity to enable students to stream online content with low latency (Siriwardhana et al., 2020; Wu et al., 2020; Ye, 2020). Due to these rapid changes in practices during ODL have enabled vital industries of the information technology market or information system (Venkatesh et al. 2016) to expand quickly to accommodate the surging demand for distance applications such as Zoom, WebEx, and Microsoft Teams (Dwivedi et al. 2020). During the online SQL training, the platform Zoom was used to accommodate the number of participants to join the programme.

In Universiti Teknologi Mara Seremban, students of Bachelor of Science (Hons) Mathematics (CS249) from the Faculty of Computer and Mathematical Science in UiTM are required to learn a few accounting courses such as financial accounting and management accountingStarting in 2020, The Faculty of Accountancy has changed the software from UBS Accounting Software (UBS) to SQL Accounting Software (SQL). Unlike UBS, where the textbook and exercises had been established and used for a long time, the SQL guideline still faces a problem of limited resource availability. The lecturers must closely guide the students in using SQL in the face-to-face class. However, the COVID-19 pandemic that hit the world has refrained students from learning the software in the computer lab guided by the lecturers as practised previously in the typical learning approach.

Figure 1 SQL Accounting Software (SQL).

This situation has motivated lecturers to produce a comprehensive manual as a guideline for student reference. The invention of this manual was named “Step-by-step: Guide and Practice for SQL Accounting Software.” The purpose of this invention is to assist students in enhancing their ability to further understand, besides helping them to attain better results in SQL’s assessment. In addition, the “Step-by-step: Guide and Practice for SQL Accounting Software” has been acknowledged by the SQL developer and has already obtained the ISBN from Perpustakaan Negara Malaysia. It will be introduced to all students across UiTM campuses and other business entities in the hope that it can bring benefits to all of them. The trainers also conducted a one-day workshop for students using this learning kit.

DESIGN AND DEVELOPMENT OF THE PRODUCT

The content selection

Firstly, a set of source documents has been created to mimic the actual situation of the business transaction. The transactions include setting a company profile, maintaining accounts, opening a balance, a case study of a one-month business transaction, and file backup. The source documents created were invoices, debit notes, credit notes, bank cheques, receipts, bank statements, and a memo. Using these source documents, a step-by-step guideline was prepared to show how to key in the data

starting from setting a company profile, keying in the relevant information, and producing a financial statement automatically.

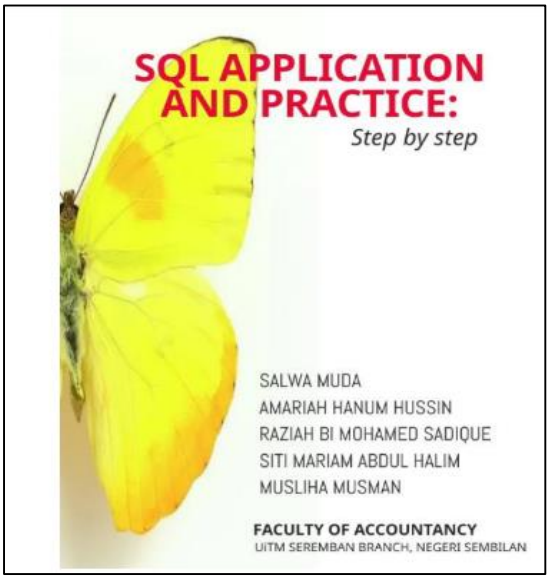


Figure 2 Step-by-Step Guide and Practice for SQL Accounting Software

The application of the instructional design model

The Analysis, Design, Development, Implementation, and Evaluation (ADDIE) instructional design model has been used in the development of this study guide. Firstly, a lack of reference and guidance was identified, and this study guide's needs were analysed. Then this study guide has been designed to cater to the need for online distance learning. Next, this study guide was developed in collaboration with E Stream MSC Sdn Bhd, a developer of SQL Accounting Software. After the endorsement and approval from E Stream MSC Sdn Bhd, this study guide was implemented for students. Lastly, to evaluate the effectiveness of this study guide, a survey was distributed to all students using a set of questionnaires.

The application of learning theories

The theory applies is Technological Evolution of E-Learning under Technology System Evaluation Theory (TSET).

The cost and time spent

The development of this study guide required a lot of effort and time paid, especially during MCO, which is very challenging for the lecturers to adjust the t time to accommodate the family and work needed. Hence, approximately two months were spent to ensure this study guide would be available to students before week 10. Moreover, the study guide was developed at no cost with the collaboration of E Stream MSC Sdn Bhd as the industry player who developed this software. However, to ensure all the students can get this study guide on time, students were charged RM20 to order it, which will be posted to their houses. Other than that, the location of the student's house, especially in Sabah and Sarawak, also needs to be considered to ensure no one is left behind during the ODL.

The features of the innovation

The features of the innovation are a manual book with ISBN Numbers. In addition to ensuring the complete delivery of the knowledge, a five-hour online training will also be conducted to equip students on how to use the software. During the online training, the lecturers will facilitate students by showing step-by-step guidance so that students can view and refer to the video recording while accomplishing their tasks.

Where the innovation can be accessed

The innovation can be accessed by purchasing a copy from the lecturers. This study guide is published by PENERBIT pending approval from PENERBIT. Due to the long queue, unfortunately, PENERBIT is still unable to post this manual as a textbook.

A STUDY TO DETERMINE THE EFFECTIVENESS OF THE PRODUC

Data for this study were collected from 236 students of UiTM Negeri Sembilan, Johor, Terengganu, and Sarawak who are currently taking the Accounting Information System (AIS615). The Google link has been forwarded to the students during A One Day SQL Workshop. The respondents of this survey included students from AC220, CS249, BA2503, and BA2504 who joined the training programme. There are 159 students from UiTM Terengganu, 39 from UiTM Johor, 21 from UiTM Sarawak, and 17 from UiTM Seremban. The descriptive analysis was analysed to evaluate the study guide's and video's usefulness and effectiveness.

Descriptive statistics of variables

Figure 3 shows the feedback of the usefulness of SQL study guide for AIS615 course. Based on the descriptive analysis result, it shows that most of the students use the study guide to complete their tasks. Moreover, all students agreed that the instructions given in the study guide are clear and easy to understand. On top of that, the study guide also helped them to accomplish their assignments. The results show that the study guide helps to improve students' performance.

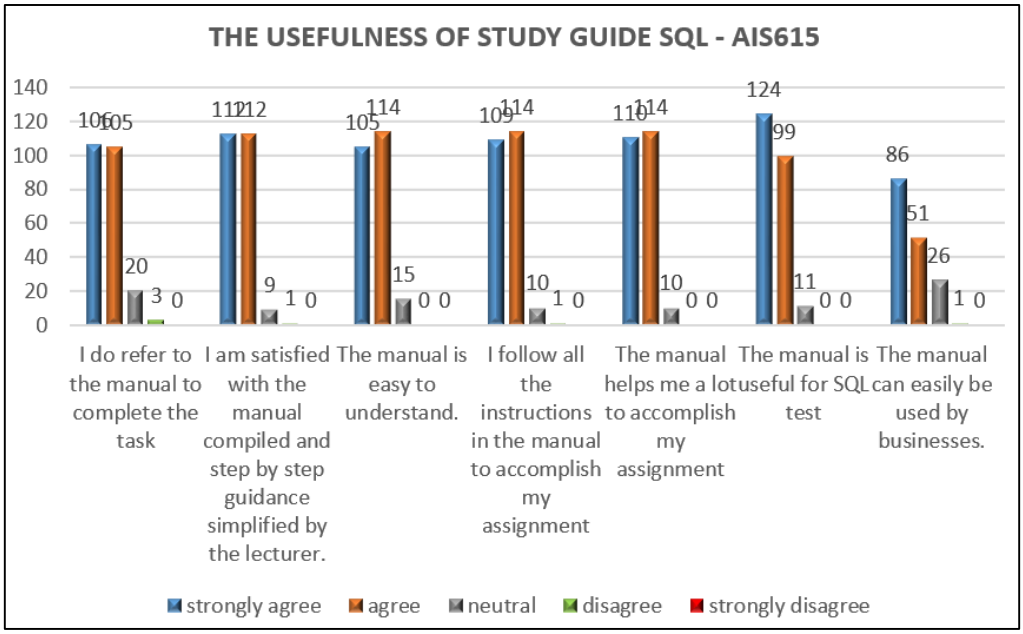


Figure 3 Usefulness of SQL Study Guide

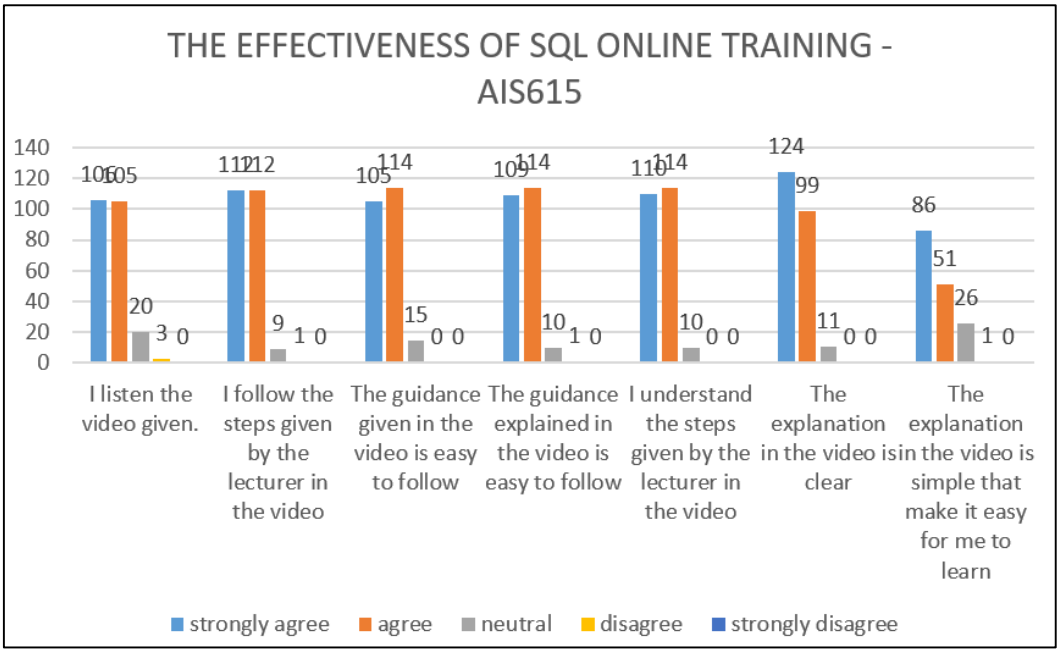


Figure 4 Effectiveness of SQL online training

On the other hand, Figure 4 shows that all students agreed that the one-day online training helped them in their tasks. The recorded video of the online training is also easy to follow and the detailed steps for SQL is well explained. In addition, students also agreed that they could easily understand the step-by-step guidance from the lecture video. This indicates that this innovation helps them to study and score in their assessment so that the course outcome can be achieved successfully.

THE NOVELTY OF THE PRODUCT

The contents of this study guide are developed with a very detailed explanation showing step-by-step guidance to enable students to obtain better results for SQL assessment tests. At the end of the semester, students will be awarded trainer certification from SQL as a highly reputable developer software once they have completed the exam. The certificate can be an advantage for them in their future employment. In addition, it may provide advantages to those new to the business, as understanding accounting is essential in ensuring business sustainability. The COVID-19 pandemic has caused many to lose their job. Hence many ventured into business. This study guide perhaps will help people who do not have a strong accounting background are still able to prepare their financial reports. Students in UiTM Seremban Campus are not from accounting courses, but they proved that they can. It shows in their high scores in SQL assessment.

COMMERCIALIZATION POTENTIAL OF THE PRODUCT (OPTIONAL)

This study guide has been registered with Perpustakaan Negara Malaysia (PNM) with ISBN 987-967-14569-3-4. To make this study guide beneficial not only to the students in Seremban Campus but this innovation will also be offered for the students in other campuses who are taking the Accounting Information System (AIS615) subject, as well as business organisations, to prepare their complete set of accounts. A more comprehensive study guide and a day workshop will be conducted for the potential participants with affordable fees. Collaboration with the developer of SQL Software, E Stream Sdn Bhd, has been officially done, and taking all their comments and recommendations into consideration on how to improve the study guide, such as the content aspect, to ensure the reliability, convenience, and optimum benefits of the study guide.

REFERENCES

Almaiah, M.A., Al-Khasawneh, A. & Althunibat, A. Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Educ Inf Technol* **25**, 5261–5280 (2020). https://doi.org/10.1007/s10639-020-10219-y

Dwivedi, Yogesh K., D. Laurie Hughes, Crispin Coombs, Ioanna Constantiou, Yanqing Duan, John S. Edwards, Babita Gupta, Banita Lal, Santosh Misra, and Prakhar Prashant. 2020. Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. International Journal of Information Management 55: 102211

Qiao, Ping, Xiaoman Zhu, Yangzhi Guo, Ying Sun, and Chuan Qin. 2021. The Development and Adoption of Online Learning in Preand Post-COVID-19: Combination of Technological System Evolution Theory and Unified Theory of Acceptance and Use of Technology. Journal of Risk and Financial Management 14: 162. https:// doi.org/10.3390/jrfm14040162

Siriwardhana, Yushan, Chamitha De Alwis, Gürkan Gür, Mika Ylianttila, and Madhusanka Liyanage. 2020. The fight against the COVID-19 pandemic with 5G technologies. IEEE Engineering Management Review 48: 72–84.

Venkatesh, Viswanath, James Thong, and Xin Xu. 2016. Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead. Journal of the Association for Information Systems 17: 328–76.

22

Group Project Monitoring System Based on Centralized Google Sheet Application for Data Mining Subject

[1] Intan Syaherra Ramli, [2] Nur Ida Aniza Rusli

Faculty of Computer & Mathematical Sciences
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah

[1] intan3885@uitm.edu.my, [2] idaaniza@uitm.edu.my

ABSTRACT

Data mining is a new discipline that involves discovering patterns and extracting information from large datasets. Recently, the demand has increased tremendously, and it has gained interest among academicians to explore the potential in various fields of research. Therefore, the data mining course has been offered to undergraduate students at Faculty Applied Science, Universiti Teknologi MARA (UiTM) Cawangan Negeri Sembilan. It aims to provide fundamental theoretical and practical skills in data mining application. As part of this course learning outcome, the students were assigned with a group project assessment which consists of data preparation and model development phases. In this project, students often faced the challenge to choose the suitable dataset and the model that suited the dataset. Consequently, they need to repeat the process if the dataset does not meet the requirement. Traditionally, students must report their progress at each phase and get approval from the lecturer before they proceed with the next steps. However, this process is time consuming and tedious especially when the class is conducted online. Therefore, the objective of this study is to develop a monitoring system that can track students' progress and automate the approval process for their group project. The centralised Google Sheet application was implemented as the platform to monitor the group project assessment. This system benefits the students as they receive the feedback on their group project timely from the lecturer. At the same time, it also helps the lecturer to monitor their student's group project efficiently.

Keywords: data mining, monitoring system, centralised system, Google Sheets

INTRODUCTION

Data mining, also known as knowledge discovery in databases (KDD), is a process of extracting useful information from a large volume of data. It is used in various disciplines such as finance, health and academics for predictive analytic and performance monitoring (Meisam et al., 2022 ; Trakunphutthirak et al., 2022 ; Jasleen & Kushdeep, 2022). Because of its capabilities in forecasting, identifying patterns, generating rules and recommendations, and developing new insights from available data, data mining has garnered substantial attention from researchers, academics, and businesses (Bryant & Raja, 2014; He, 2014). As the increasing demand for graduates to have data science knowledge, ITS665 is offered to undergraduate students at Universiti Teknologi MARA (UiTM) Cawangan Negeri Sembilan (Bile Hassan, Ghanem, Jacobson, Jin, Johnson, Sulieman, & Wei, 2021). ITS665 is a data mining course enrolled by undergraduate students from the Faculty of Applied Sciences with the aim of strengthening their theory and practical skills of data mining application.

Traditionally, students are required to consult the lecturer by appointment throughout the project phases which includes the data acquisition and understanding, data pre-processing, data transformation, model development and evaluation. However, the manual method on reporting the progress is tedious and time consuming for the students and lecturer especially when the classes conducted online during the pandemic. Moreover, the students often faced the challenges to choose the suitable dataset for their project without early consultation. If the dataset is not meeting the requirements of the group project, they must switch the dataset and begin the process all over again. These issues make it difficult for both parties to organise and monitor group projects' progress. Therefore, this study aims to develop a monitoring system that can monitor students' progress and automate the approval process for their progress work to reduce the difficulties of the monitoring process. Therefore, this study aims to:

a. Develop a monitoring system to track students' progress on the group project.
b. Automate the approval process for their progress work.

This paper is structured as follows: Section 2 describes the methodology, Section 3 presents the discussion; and finally, Section 4 draws the conclusion.

METHODOLOGY

Project monitoring system was developed based on three main phases including group information, data preparation and model development process using a google sheet application. Figure 1 shows the flow chart of the monitoring process. The Google Sheet application is centralised which can be shared among the students and lecturer. The first phase involves the group information details such as project title, group member, matrix no and the link to the google drive for submission. This step is essential to ensure that the students already selected their group members, and they are aware about their group progress. Next, the data preparation phase is the crucial part. This phase is very important as the students need to acquire the dataset from the internet sources such as kaggle.com and understand the dataset. They also need to ensure the dataset meet the requirement for the project as stated in the project guideline. Therefore, data preparation involves three main steps which are data acquisition and understanding, pre-processing and transformation. Then, the model development phase involves the classification steps and comparison between the evaluation of the model. At each phase, the lecturer has to track the group progress and provide the comment. After that, the students have to do the correction based on the comment. Once the lecturer approves, then the students can proceed to the next phase. Figure 2 shows the interface of the project monitoring system that comprises all the project phases.

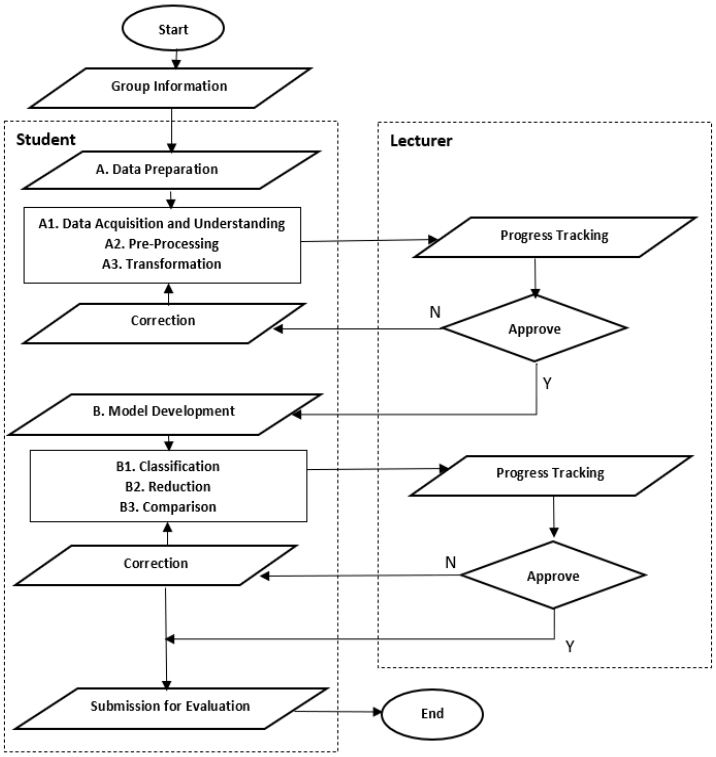


Figure 1 Flow Chart of the Monitoring Process

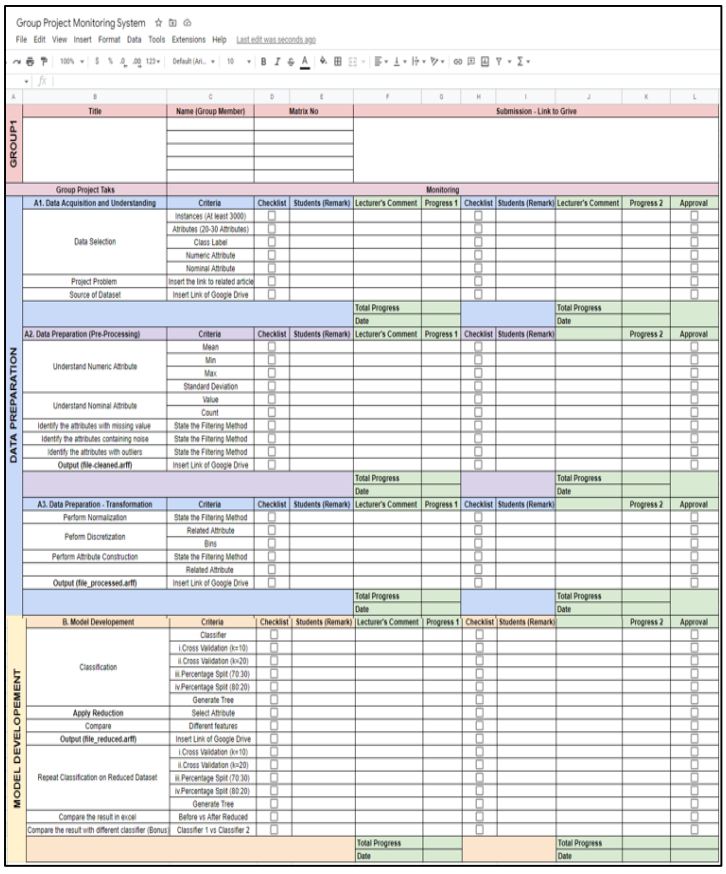
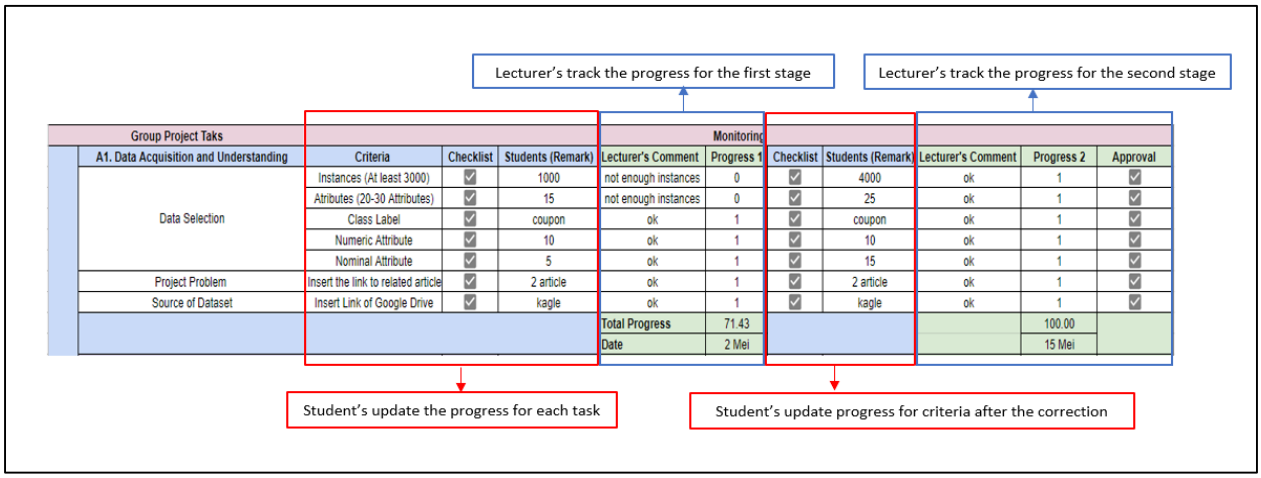


Figure 2 Project Monitoring System Interface

This system provides a specific monitoring sheet for each group. The students have to fill in the checklist on each task and remark on their finding. After that, the lecturer has to provide the comments based on the checklist whether the dataset meets the requirement or not. Figure 3 shows the example for the step in A1. Data acquisition and understanding. This step involves data selection, project problem and source of dataset. The students have to specify their findings based on each criteria. The monitoring process starts when the lecturer provides the comments and rates the progress for the first layer. The progress rating is either 1 refer to complete and 0 for incomplete criteria. After that, students have to perform the corrections based on the comments and the dateline given by the lecturers. The second layer monitoring process starts after the students have completed their correction based on the given dateline. At this stage, the lecturer has to track the progress for the second layer and provide the approval for each criteria.



Group Project Taks				Monitoring						
A1. Data Acquisition and Understanding	Criteria	Checklist	Students (Remark)	Lecturer's Comment	Progress 1	Checklist	Students (Remark)	Lecturer's Comment	Progress 2	Approval
Data Selection	Instances (At least 3000)	☑	1000	not enough instances	0	☑	4000	ok	1	☑
	Atributes (20-30 Attributes)	☑	15	not enough instances	0	☑	25	ok	1	☑
	Class Label	☑	coupon	ok	1	☑	coupon	ok	1	☑
	Numeric Attribute	☑	10	ok	1	☑	10	ok	1	☑
	Nominal Attribute	☑	5	ok	1	☑	15	ok	1	☑
Project Problem	Insert the link to related article	☑	2 article	ok	1	☑	2 article	ok	1	☑
Source of Dataset	Insert Link of Google Drive	☑	kagle	ok	1	☑	kagle	ok	1	☑
				Total Progress	71.43				100.00	
				Date	2 Mei				15 Mei	

Figure 3 Step A1. Data Acquisition and Understanding Monitoring Process

DISCUSSION

The monitoring system was developed to strategize the monitoring process of the student's group projects for the data mining subject. The advantage of this system is centralised between students and lecturer. Traditionally, the lecturer provides the general information about the group project in the form of a PDF during class. This system enhances the manual monitoring process where the students are able to get the feedback from the lecturer faster and in real time. Besides, the lecturer is able to keep track of the student's progress to avoid the problem related with unsuitable dataset for the project. Furthermore, the lecturer is able to tackle the problem regarding the group project earlier. Furthermore, this can reduce the time in lecture where the lecturer can directly focus to discuss the main problem encountered by the students during class session. This kind of mechanism is more efficient, and it is going to be implemented more intensively in the next semester. This system also automatically tracks the overall performance of the student's group for each task. Therefore, the lecturer is able to analyse the overall progress easier and faster with the visualisation feature. Figure 4 shows the overall automatic tracking for each group for task A1. Data acquisition and understanding.

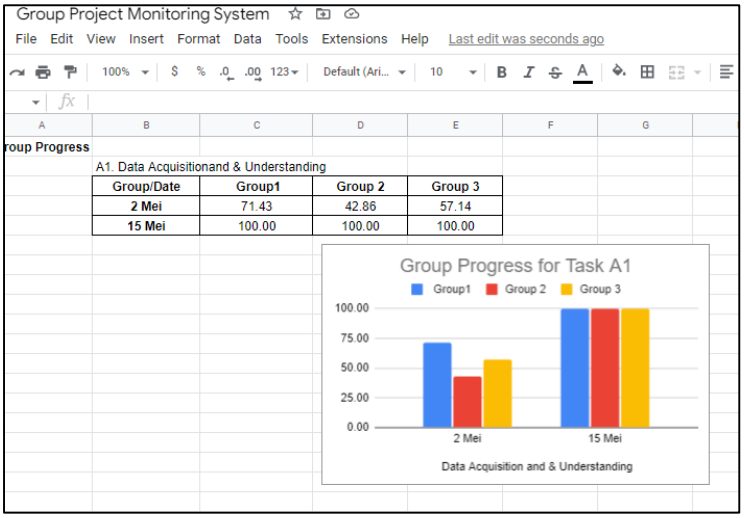


Figure 4 Overall automatic tracking for each group

CONCLUSION

This study has presented a monitoring system to track the progress of ITS665 (data mining) group projects. The proposed monitoring system, which was built using Google Sheets Application, can be conceived as an innovative platform that automatically allows lecturers to monitor and analyse the students' progress in group projects . In addition, the system can help students to ensure the selected dataset meets the group project requirements at the early phase before they proceed to the next phases. For the upcoming implementation, this study plans to enhance the system by replacing Google Sheets with a prospective tool that can improve the system's security and more interactive user interface.

REFERENCES

Bile Hassan, I., Ghanem, T., Jacobson, D., Jin, S., Johnson, K., Sulieman, D., & Wei, W. (2021). Data Science Curriculum Design: A Case Study. In Proceedings of the 52nd ACM Technical Symposium on Computer Science Education, 529-534. https://doi.org/10.1145/3408877.3432443

Bryant, A., & Raja, U. (2014). In The Realm of Big Data. First Monday, 19(2). https://doi.org/10.5210/fm.v19i2.4991

Jasleen, K. & Kushdeep, D. (2022). Application and performance of data mining techniques in stock market: A Review. Intelligent Systems in Accounting, Finance and Management. https://doi.org/10.1002/isaf.1518

Meisam, G., Saeed, R., Sabbagh Y. Zubaidah, I., Khaled, G., Páraic C., Daniel, M., Bijan, S.(2022). State-of-the-art review on advancements of data mining in structural health monitoring,Vol(193). https://doi.org/10.1016/j.measurement.2022.110939.

Trakunphutthirak, R., & Lee, V. C. S. (2022). Application of Educational Data Mining Approach for Student Academic Performance Prediction Using Progressive Temporal Data. Journal of Educational Computing Research, 60(3), 742–776. https://doi.org/10.1177/07356331211048777

23

Online Revision using Telegram Poll

[1] Nurulizzati Makhtar, [2] Siti Zaubidah Abdullah, [3] Siti Nafisah Md Rashid,
[4] Nur Hasyimah Ramli, [5] Nor Fadhlin Jaafar

Faculty of Applied Science
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah

[1] nurulizzati@uitm.edu.my, [2] zaubidah@uitm.edu.my, [3] nafisah@uitm.edu.my
[4] nurhasyimah@uitm.edu.my, [5] norfadhlin543@uitm.edu.my

ABSTRACT

Since the COVID-19 outbreak in March 2020, technology has impacted almost every industry, including education. With the implementation of Open and Distance Learning (ODL) approach at Universiti Teknologi MARA, educators are interested in using Telegram to conduct online classes as it offers interactive features such as telegram chat, telegram channel, telegram poll, telegram video conference and many others. This paper aims to provide guidelines for using Telegram Poll as a revision tool for Physics courses taught to pre-diploma and diploma students in the March and October semesters of 2021. The ADDIE model was used as a primary framework to describe Telegram Poll's use to revise physics topics in class. The lecturer will use poll features to post any questions about the subject. Based on the student's responses, the educators will be able to monitor the student's understanding of the topic and improve their performance in Physics courses.

Keywords: Telegram, poll, online, Open and Distance Learning (ODL), revision

INTRODUCTION

During the national lockdown in 2020 due to COVID-19, various sectors were affected including the higher education sector. As an alternative, online learning and information and communication technology (ICT) is used by lecturers and students including the administrative department of all universities in Malaysia (Omar et al., 2021). In many countries including Malaysia, Science, technology, engineering, and mathematics (STEM) education has become a primary focus (Guan et al., 2020). Telegram is a free tool with several features (Solomon, 2021), such as discussion, virtual notification, sharing notes, telegram polls and useful educational hyperlinks (Iksan & Mohd Saufian, 2017; Tuan Kechil et al., 2019).

Due to the flexibility offered by this app, many bots that were custom-made by the users are added to the Telegram library system, thus providing the students and lecturers with tons of game activities that can be played together for interactive class sessions (Modrzyk, 2018). The existence of robots or so-called “bots” is a special feature in Telegram. The vote bot allows instructors to create a survey and get feedback from students through a Likert scale questionnaire system (Faramarzi et al., 2019). Millions of people in conversations and channels may vote on polls and quizzes that have been posted using Telegram. Based on the results from Ismawati & Prasetyo (2020), the students from SKB Kabupaten Sleman and SKB Kabupaten Bantul revealed the feasibility of Telegram BOT as a learning medium.

Meanwhile, Aladsani (2021) used a Telegram Poll to find out which days were most frequently suggested by 3 groups of 77 female students at King Faisal University (KFU), Saudi Arabia which the

day with the highest percentage in the poll decided to be the exam day. Nourazar et al. (2022) created five statements on the efficiency of metacognitive writing methods to survey learners' opinions about scaffolded writing strategy education using Telegram Poll. Therefore, the participants could react to the statements by choosing from the four options stated: "strongly agree," "agree," "disagree," and "strongly disagree".

Therefore, this paper aims to provide guidelines for using Telegram Poll as a revision tool for Physics courses taught to pre-diploma and diploma students in the March and October semesters of 2021. This is in accordance with the Malaysian Ministry of Education (MOE) with National Science and Technology Policy by aiming for more science students to be involved in the field of health work, engineering, science education, Information and Communication Technology (ICT) and other science related courses (Ibrahim et al., 2019).

DESIGN AND DEVELOPMENT OF THE PRODUCT

The ADDIE model serves as the primary framework in this study for creating alternative ways of teaching methods (Figure 1). Five components make up this model: analysis, design, development, implementation, and evaluation (Herout, 2016). Since this model benefits in many ways such as a systematic approach, common framework, integration ability, and ease of learning, most researchers adopt this model (Aadenan et al., 2018; Hidayanto et al., 2017).

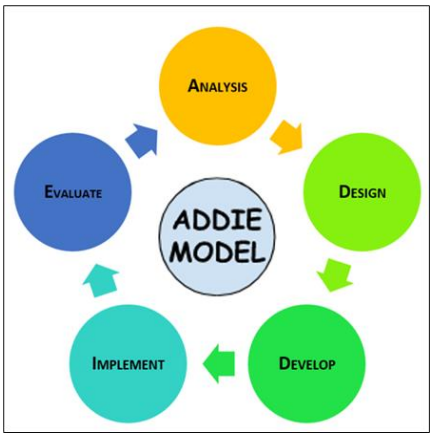


Figure 1 The ADDIE Model

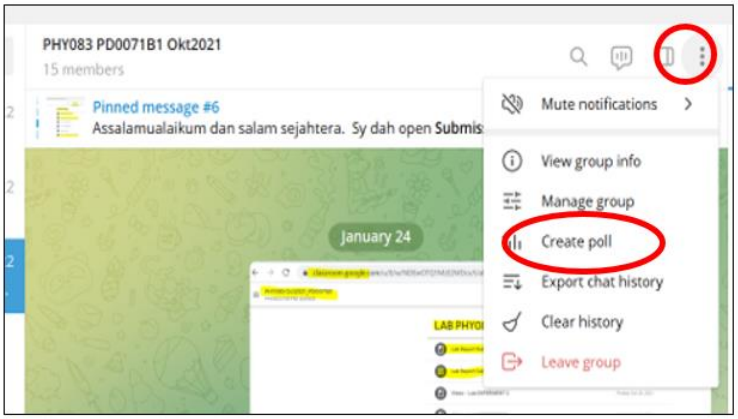


Figure 2 Function button of Telegram Poll

Most educators utilize Telegram's pool feature to create revisions or spontaneous quizzes because it is a simple and user-friendly tool. The educators must click the pool function button to use the functionality, as shown in Figure 2. As simple as five steps, the section where the question is created is displayed in Figure 3. Firstly, in Step 1, the desired question can develop in the question section. Next step, in a section of poll options, a list of answers can be inserted with a maximum of 10 answers. Step 3, in the setting section, the educator can choose between the available options such as anonymous voting, multiple answers or quiz mode. If the educator selects anonymous voting, the student's name will not be displayed in the quiz results section. However, if the educator wants the student's name revealed, the educator must unclick anonymous voting and choose quiz mode or multiple answers. Step 4 provides the students with a review of the incorrect answers, and the final step, Step 5, involves clicking the create button to cause the quiz to appear in the Telegram group. Figure 4 depicts the quiz's interface before and after the student's responses. After all the students complete the quiz, educators can stop the poll and monitor the student's performance based on the results (Figure 5).

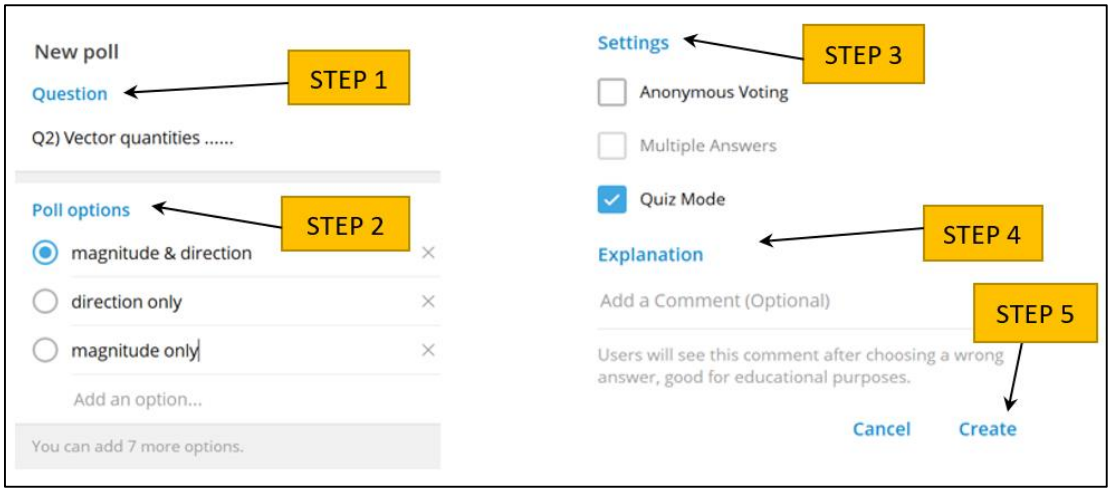


Figure 3 Method designing question

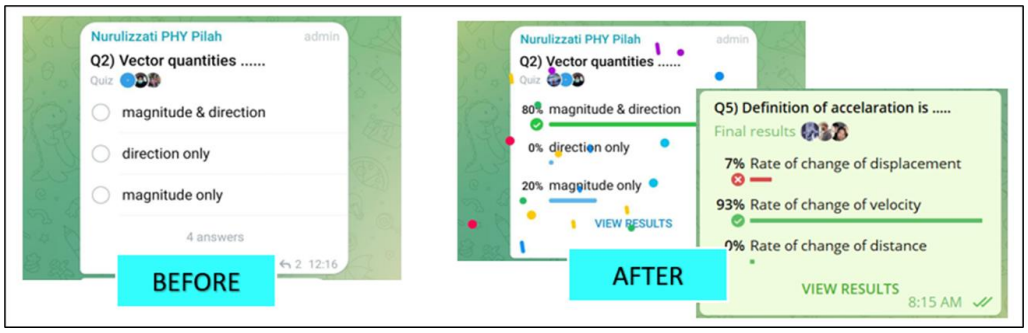


Figure 4 The interface of the question (before and after answering) in the Telegram chat

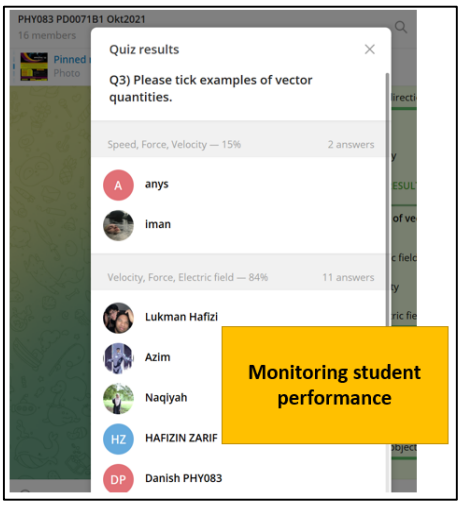


Figure 5 Monitoring student performance

THE NOVELTY OF THE PRODUCT

Telegram-based teaching and learning strategies have been used to meet the needs of students who struggle to get a stable internet connection. Numerous beneficial elements can be employed to properly accomplish this process because Telegram can be used with limited connection data. Additionally,

interactive instructional websites can be embedded using Telegram. Further, students can join public groups on Telegram in addition to the private class their educator has created for them. Another novelty of this research is that it can support the government's policy on reducing pollution. Giving assignments or tutorials via Telegram can be environmentally friendly by reducing paper use. Telegram-based instruction and learning are more relevant and substantial because all students can complete the learning goals at the end of the session.

REFERENCES

Aadenan, A., Abdullah, S. Z., Jaafar, N. F., & Makhtar, N. (2018). Effective learning using Newton's Free Body Diagram (FBD) Ruler. *Jurnal Inovasi Malaysia*, *2*(1), 61-74.

Aladsani, H. K. (2021). University students' use and perceptions of telegram to promote effective educational interactions: A qualitative study. *International Journal of Emerging Technologies in Learning*, *16*(9), 182-197. https://doi.org/10.3991/ijet.v16i09.19281

Faramarzi, S., Tabrizi, H. H., & Chalak, A. (2019). Telegram: An instant messaging application to assist distance language learning (App review). *Teaching English with Technology*, *19*(1), 132-147. http://www.tewtjournal.org

Guan, N. H., Bunyamin, M. A., & Khamis, N. (2020). Perspectives of STEM education from physics teachers' points of view: A quantitative study. *Universal Journal of Educational Research, 8*(11C), 72-82. DOI: 10.13189/ujer.2020.082309

Herout, L. (2016). Application of gamification and game-based learning in education. In *EDULEARN2016: 8th International Conference on Education and New Learning Technologies* (pp. 978-984).

Hidayanto, D. R., Munir, Rahman, E. F., & Kusnendar, J., (2017). The application of ADDIE model in developing adventure game-based multimedia learning to improve students' understanding of basic programming. *Conference: 2017 3rd International Conference on Science in Information Technology (ICSITech)*, 307-312. doi: 10.1109/ICSITech.2017.8257130.

Ibrahim, N., Zakiang, M. A. A., & Damio, S. M. (2019). Attitude in learning physics among form four students. *Social and Management Research Journal*, *16*(2), 21–42. https://doi.org/10.24191/smrj.v16i2.7060

Iksan, Z. H., & Mohd Saufian, S. (2017). Mobile learning: Innovation in teaching and learning using Telegram. *International Journal of Pedagogy and Teacher Education (IJPTE), 1(*1), 19-26. https:// 10.20961/ijpte.v1i1.5120.

Ismawati, D., & Prasetyo, L. (2020). The Development of Telegram BOT Through Short Story. *Advances in Social Science, Education and Humanities Research, 456*, 209-212. doi: 10.2991/assehr.k.201021.049

Modrzyk, N. (2018). *Building telegram bots: develop bots in 12 programming languages using the telegram bot API.* Apress.Nourazar, S., Kakvand, R., & Aliasin, S. H. (2022). The Impact of Scaffolded Metacognitive Writing Strategy Instruction on Iranian Intermediate EFL Learners' IELTS Writing Task 2. *Education Research International*, *2022*(5), 1-8. doi:10.1155/2022/6297895

Omar, N. H., & Thomas, B., & Jusoh, M. Z., & Jalil, S. Z. (2021). Students' perception and preference for online learning in Sabah during COVID-19 pandemic. *International Journal of Academic Research in Business and Social Sciences. 11*(11), 270–292. https://10.6007/IJARBSS/v11-i11/11262.

Solomon, G. O. (2021). Perceptions of students on the use of Telegram during the COVID-19 pandemic. *Acta Informatica Malaysia*, *5*(1), 21-24. doi:10.26480/aim.01.2021.21.24.

Tuan Kechil, T. S. K., Awang, M. M., & Ahmad, A. R. (2019). The relationship between Telegram application as a history learning platform and student performance. *Global Conferences Series: Social Sciences, Education and Humanities (GCSSSEH), 2*, 156-160. https://doi.org/10.32698/GCS.0189

24

Development of Lewis Structure Online Games as an Alternative Learning Tool for Teaching and Learning Process

Nor Akmalazura Jani
Faculty of Applied Sciences, Universiti Teknologi MARA Cawangan Negeri Sembilan, Kampus Kuala Pilah
NorAkmalazura@uitm.edu.my

Tuan Sarifah Aini Syed Ahmad
Akademi Pengajian Bahasa, Universiti Teknologi MARA Cawangan Negeri Sembilan, Kampus Seremban
tsyaini@uitm.edu.my

Wan Elina Faradilla Wan Khalid
Faculty of Applied Sciences, Universiti Teknologi MARA Cawangan Negeri Sembilan, Kampus Kuala Pilah
wan_elina@uitm.edu.my

Rohaiza Saat
Faculty of Applied Sciences, Universiti Teknologi MARA Cawangan Negeri Sembilan, Kampus Kuala Pilah
rohaizas@uitm.edu.my

Nurazira Mohd Nor
Faculty of Applied Sciences, Universiti Teknologi MARA Cawangan Negeri Sembilan, Kampus Kuala Pilah
nurazira@uitm.edu.my

ABSTRACT

Lewis Structure is one of important concepts in learning Chemistry in terms of determining properties and chemical bonding of compounds. Drawing and understanding the Lewis Structure can be quite challenging for tertiary students. Therefore, online games have been developed to increase students' participation in learning Lewis Structure. There are three reasons for developing online games which are: (1) online games are more enjoyable since multimedia elements can be applied in the developed games to grab students' attention (2) gamification elements such as score, explanatory feedback, praise feedback, verification feedback and game levels can be included in the game design in order to make learning experience more meaningful and (3) online games can offer personalised learning as they can be played at student's pace and accessed at any time and from anywhere. The games for learning Lewis Structure were developed by using a free online application called Scratch which can be accessed at https://scratch.mit.edu/. The Lewis Structure online games was developed into two stages. In 2021, the games for stage one were developed which involved easy molecules which are CCl_4, CH_4 and H_2O. The development of games for stage two was continued in 2022 with moderate molecules namely H_3O^+, CO_3^{2-} and HCN. All the games are curated on Google Site (https://sites.google.com/view/lewis-structure/home/easy-molecules) for easy access by the students. In conclusion, an alternative approach is offered to students for a more effective and meaningful learning process.

Keywords: Lewis structure, online games, Scratch, Google Site

INTRODUCTION

Online games are popular as a form of entertainment and have become one of the largest forms of leisure information systems in the past decade (Hamari & Keronen, 2017). With the proliferation of the Internet, a huge number and varieties of online games are available across various platforms such as smartphones, computers and tablets which have attracted people from all age groups. The demand for online games has witnessed a great jump due to the COVID-19 pandemic by most countries around the globe (Jinqi et al., 2021).

Educational games are designed by using game elements to make learning fun and engaging. The game elements applied in educational games the educational setting is called gamification. Hamari and Koivisto (2015) define gamification as technologies that attempt to promote intrinsic motivations toward various activities, commonly, by employing design characteristics to games. Gamification in learning applies game elements such as point scoring, peer competition, teamwork, score tables. The game elements may drive engagement, help students to assimilate new information and assess their knowledge.

The COVID-19 pandemic has affected the closure of educational institutions worldwide. Thus, it is imperative to use technological means to provide better access to the learning process (Almaiah et al., 2020). The development of educational software, either web-based or mobile applications which can be accessed via digital devices such as personal computers, smartphones or tablets can be used as learning tools, and they can be accessed at any time and from anywhere (Troussas et al., 2020). The use of media and the digital game-based learning method is a very close combination with the daily activities of today's students. This will bring joy in learning and increase students' motivation (Wati & Yuniawatika, 2020). Therefore, online games for learning Lewis structure were developed to facilitate students in learning the topic during the pandemic.

Learning Lewis structures is an essential part in a course, Introductory Chemistry. A Lewis structure is a diagram which shows a simple visualisation of the outer shell and valence electrons in an atom which can facilitate students to understand molecular structures and bonding (Nassiff & Czerwinski, 2015). However, learning Lewis structures can be challenging especially for students who have difficulties to understand the concept of electron octet. As a result, they are unable to visualise the Lewis structures and have a difficulty in mastering even a simple structure (Nassiff & Czerwinski 2015; Paye et al., 2021). Hence, online games for learning Lewis structures were developed with the following aims:

a. To provide an alternative method to help students in mastering Lewis structures.
b. To provide gamified learning activities using selected game elements in order to sustain students' engagement and motivation in learning.

DESIGN AND DEVELOPMENT OF THE PRODUCT

The online games were developed for the first-year students at the matriculation, diploma or degree levels. Generally, they learn Lewis structure in General Chemistry in their first semester. The development of the games involved two phases. In the first phase, three games for three simple molecules were developed previously (Wan Khalid et al., 2021). Then, three games using three moderate were developed in the second phase. The development of all the games was based on storyboards where the contents and game elements were selected.

Lewis Structure online games were designed by using the ADDIE Model which consists of five phases namely (1) Analysis, (2) Design, (3) Development, (4) Implementation and (5) Evaluation. The ADDIE model was chosen due to its clear instructions and can be integrated into any learning strategy (Hall, 1997; Hidayanto et al., 2017). The ADDIE model has several advantages such as it is not just easy and simple, but it also has a systematic generic approach to provide a clear instructional framework so that researchers can design effective instructional products (Sahrir & Alias, 2012).

The questions in the Lewis Structure online games were selected and arranged according to cognitive difficulty levels. Therefore, the difficulty of questions gradually gets difficult (Jodoi et al., 2021). The revised Bloom's Taxonomy was applied to design the difficulty levels in the Lewis Structure online games by arranging questions according to six cognitive levels namely (1) Remember, (2) Understand, (3) Apply, (4) Analyse, (5) Evaluate, and (6) Create (Krathwohl, 2002). Table 1 demonstrates the example of how questions were arranged according to the levels.

Table 1
Cognitive difficulty levels of questions according to the Blooms' Taxonomy

	Level	Question	Task
1.	Remember	Identify the valence electron for each atom	Remember the information from the periodic table.
2.	Understand	Calculate the total number of valence electrons	Understand how to calculate the total number of valence electrons in a molecule.
3.	Apply	Draw the skeletal structure of the molecule by joining the atom using single bond	Apply the knowledge on how atoms are joined to form a molecule
4.	Analyse	Calculate the bonding and remaining electrons	Analyse the Lewis structure of a molecule to determine the number of remaining electrons
5.	Evaluate	Assign the remaining electrons to the terminal atoms	Evaluate the Lewis structure to identify the terminal atoms and where to assign the remaining electrons.
6.	Create	Move lone pairs of the terminal atom to form triple bonds with the central atom	Create a new Lewis structure by identifying which lone pairs to be move and where to move them.

Several learning theories were applied in the development of the games. First, Behaviourism was applied when the gamification elements such as score, verification feedback and praise feedback were provided as the elements promote positive reinforcement. Second, Constructivism was applied when the gamification element, explanatory feedback, was provided as it leads to the construction of new understanding of the content presented in the games. Third, Cognitivism was applied when the learning content was presented according to the cognitive difficulty levels by using the revised Bloom's Taxonomy (Krathwohl, 2002). The rubrics of the games used Bloom's verbs in order to assess students' understanding of contents for each molecule according to cognitive difficulty levels. It is common to apply the Bloom's Taxonomy in the game design to separate content difficulty (Tuan Sarifah Aini & Anealka, 2017). Finally, the Cognitive Theory of Multimedia Learning was applied to choose appropriate multimedia elements in order to avoid cognitive loads (Clark & Mayer, 2011).

The games were developed online using Scratch where it is considered cost effective due to it is a free online application, and it can be accessed at https://scratch.mit.edu/. Moreover, no coding is required so that instructors with zero coding knowledge can develop the games easily. Most of the multimedia elements such as graphics, sounds and text used were taken from the multimedia library provided by Scratch.

After the games were developed, they were curated on Google Site by embedding the game links on the site. This is to provide easy access for students or other users as all the games can be accessed by using one link, https://sites.google.com/view/lewis-structure/home. On this site, the previous innovation competition and related publication were also shared (Figure 1). The developed games are considered narrative, because they contain text and cartoons (Sobrino-Duque et al., 2022). Basically, the design and development of the games are easily transferable to other practitioners because they can see how the Scratch blocks are used to design the games. They can copy the design of the games and apply their contents easily.

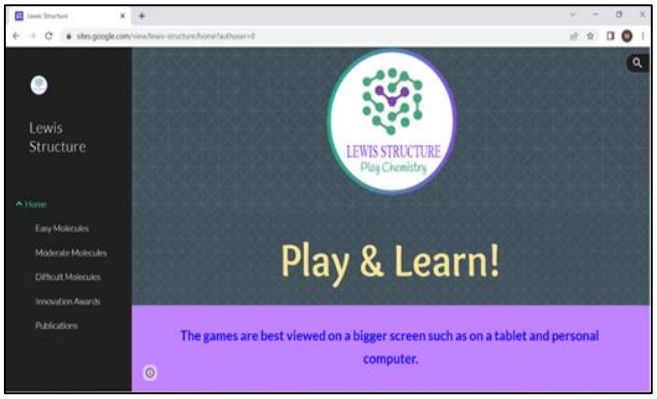


Figure 1 The Google Site Interface to Access Lewis Game

NOVELTY OF THE PRODUCT

The novelty of the games can be seen from the content selection and the design of game templates. The contents were selected and arranged according to the difficulty levels. Thus, molecules were divided into easy and moderate based on their Lewis structures. Then, the questions in each level for each molecule were arranged from easy to difficult, following the Bloom's Taxonomy. Three game templates were specially designed using Scratch to present the selected contents which were gap filling, drag and drop, and multiple choice.

The inventiveness of the games is evident in the game design. First, the games were designed to increase learner control by providing buttons to move to the next screen and next question. Second, the screen layout was designed to ease the game navigation on Google Site. Third, multimedia elements were selected cautiously to avoid cognitive load. Thus, only three elements were used which were sound, text and graphics. Finally, specific game elements were selected, which were score, verification feedback, praise feedback, explanatory feedback, and life. The game design improves current educational problems during the COVID-19 pandemic where the implementation of online learning has poor engagement. The games can increase engagement by making learning fun and promote student centredness by allowing personalised learning where students can regulate their learning without the presence of the instructor at any time and from anywhere.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

The games cannot be commercialised because they are shared on the Scratch website. All projects which are shared on the websites apply the Creative Commons Attribution Share-Alike licence 2.0 (CC-BY-SA) where projects can be shared and adapted for any purpose. The detailed explanation about the licence can be found at https://creativecommons.org/licenses/by-sa/2.0/.

REFERENCES

Almaiah, M. A., Al-Khasawneh, A. & Althunibat, A. (2020). Exploring the critical challenges and factors infuencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, 25, 5261–5280.

Clark, R. C., & Mayer, R. E. (2011). *e-Learning and the Science of Instruction* (3rd ed.). San Francisco: John Wiley & Sons.

Hall, B. (1997). *The Web-Based Training Cookbook*, New York: Wiley.

Hamari, J. & Koivisto, J. (2015). Why do people use gamification services? *International Journal on Information Management*, 35(4), 419–431.

Hamari, J. & Keronen, L. (2017). Why do people play games? A meta-analysis. *International Journal on Information Management*, 37(3), 125–141.

Hidayanto, D. R., Munir, Rahman, E. F. & Kusnendar, J. (2017). The application of ADDIE model in developing adventure game-based multimedia learning to improve student's understanding of basic programming. *2017 3rd International Conference on Science in Information Technology* (ICSITech), 307–312.

Jinqi, D., Renjie, S., Minxiong, C., Mengjie, T., Quanlei, Y., Fanchang, K. & Qingbai, Z. (2021). "Are online games a blessing or evil? The moderating role of self-worth". *Thinking Skills and Creativity*, 41, 1–19.

Jodoi, K., Takenaka, N., Uchida, S., Nakagawa, S. & Inoue, N. (2021). Developing an active-learning app to improve critical thinking: item selection and gamification effects. *Heliyon*, 7, e08256.

Krathwohl, D. R. (2002). A revision of Bloom's Taxonomy: An overview. *Theory Into Practice*, 41(4), 212–218. https://doi.org/10.1207/s15430421tip4104

Nassiff, P. J. & Czerwinski, W. A. (2015). Teaching beginning chemistry students simple Lewis dot structures. *Journal of Chemical Education*, 92, 1409–1411. https://doi.org/10.1021/ed5007162

Paye, C., Dunnagan, C. L., Tredwell, D. & Gallardo-Williams, M. T. (2021). Connecting the dots: Lewis structure builder web app as a review tool for Organic Chemistry. *Journal of Chemical Education*.

Sahrir, M. S. & Alias, N. A. (2012). A design and development approach to researching online Arabic vocabulary games learning in IIUM. *Procedia-Social and Behavioral Sciences*, 67, 360–369.

Sobrino-Duque, R., Martínez-Rojo, N., Carrillo-de-Gea, J. M., López-Jiménez, J. J., Nicolás, J., & Fernández-Alemán, J. L. (2022). Evaluating a gamification proposal for learning usability heuristics: Heureka. *International Journal of Human – Computer Studies* 161, 102774

Troussas, C., Krouska, A. & Sgouropoulou, C. (2020). Collaboration and fuzzy-modeled personalization for mobile game-based learning in higher education. *Computers & Education*, 144, 103698.

Tuan Sarifah Aini, S. A., & Anealka, A. H. (2017). Application of the Bloom's Taxonomy in online instructional games. *International Journal of Academic Research in Business and Social Sciences*, 7(4), 1009–1020. https://doi.org/10.6007/IJARBSS/v7-i4/2910

Wan Elina Faradilla, W. K., Tuan Sarifah Aini, S. A., Nor Akmalazura, J., Rohaiza, S. & Nurazira, M. N. (2021). Online games for learning Lewis structure. *I-SPiKE 2021 International Exhibition & Symposium E-Proceedings*. https://ispike2021.uitm.edu.my/images/content/eproceedings.pdf

Wati, I. F., & Yuniawatika. (2020). Digital game-based learning as a solution to fun learning challenges during the COVID-19 pandemic. *1st International Conference on Information Technology and Education (ICITE 2020)*, 508, 202–210.

25

It's No Longer a Lonely Journey: *Virtual Summit Sekolah Penulisan Tesis* (VSSPT 1.0) as Social Support for Postgraduate Students

Wan Zumusni Wan Mustapha
Academy of Language Studies
Universiti Teknologi MARA Cawangan Negeri Sembilan
zumusni178@uitm.edu.my

Tiny AzleenYahaya
Faculty of Business and Management
Universiti Teknologi MARA, Shah Alam, Selangor
tiny@uitm.edu.my

Romaizah Abdul Kadir
Suruhanjaya Koperasi Malaysia
romaizah@skm.gov.my

ABSTRACT

The Virtual Summit Thesis Writing School or *Virtual Summit Sekolah Penulisan Tesis* (VSSPT) Programme 1.0 was founded in 2020 in response to providing a platform for postgraduate students to seek guidance on motivation, technical, and social support. VSSPT 1.0 was conducted during the pandemic, and this came timely as most students were studying in a distant mode. VSSPT 1.0 uses an online mode where the lecturers are accessed on a secret Facebook page and available in the form of recordings for paid subscribers. It is the first time ever such a programme has been launched commercially. The panels are multidisciplinary and experts from diverse academic and non-academic backgrounds. 1351 students from Brunei, Singapore, Indonesia, and Malaysia signed up for this programme. They are able to access the lecturers anytime, and anywhere. They can also watch the recorded lecturers at their own convenience and interact with the respective lecturers the first time it was aired. This chapter shares how VSSPT 1.0 has provided social support for postgraduate students in Malaysia and other countries. This is done through an ecological model network and online social software that play an important role in local cultural learning, compensating for the lack of host contact among the postgraduate students engaging as comrades in this lonely journey.

Keywords: online training, adult learners, postgraduate students, secret Facebook group, social support.

INTRODUCTION

Drawing from the personal experiences of the founder when doing her Ph.D, Dr Tiny Azleen has been organising *Virtual Summit Sekolah Penulisan Tesis* (VSSPT 1.0) Programme since 2020 under Inspiwriter Academy Ventures. VSSPT 1.0 provides a platform for postgraduate students to seek guidance on motivation, technical and social support. The main purpose of VSSPT 1.0 is to enlighten postgraduate students on the barriers and obstacles in the postgraduate world and provide guidance with the necessary knowledge before embarking on their postgraduate journey. Other than that, VSSPT aims to provide comprehensive, strategic, and tactical knowledge in navigating postgraduate studies.

Inspiwriter Academy Ventures has been organising VSSPT which happened to be conducted during the pandemic, so this came timely as most students were studying at a distant mode. VSSPT uses an online

mode where the lecturers are accessed on Facebook and available in the form of recordings. The panels are multidisciplinary and experts from academic and non-academic. 1351 students from Brunei, Singapore, Indonesia, and Malaysia signed up for this programme. The objectives of VSSPT are as follows:

a. To provide a platform for sharing expertise for postgraduate students to learn more about research methodologies and other aspects of postgraduate studies from experts from many disciplines.

b. To provide an online platform for postgraduate students to network and reach out for social support.

The medium of instruction is Bahasa Melayu to cater to the target audience, namely Malaysian postgraduate students. Table 1 and 2 provide the participants' demographic profiles.

Table 1
VSSPT 1.0 participants' origin countries

Countries	Members
Malaysia	1,318
Brunei	9
Indonesia	6
United Kingdom	5
Saudi Arabia	4
Australia	2
Germany	1
Egypt	1
Japan	1
Yemen	1
Qatar	1
Singapore	1
Turkey	1
TOTAL	1351

Table 2
VSSPT participants' gender and age range

Age Range	Women	Women (%)	Men	Men (%)
13-17	0	0%	0	0%
18-24	17	1.3%	13	1%
25-34	274	20.4%	101	7.5%
35-44	503	37.4%	165	12.3%
45-54	156	11.6%	70	5.2%
55-64	19	1.4%	11	0.8%
65+	9	0.7%	6	0.4%

Figure 1 VSSPT Facebook Banner

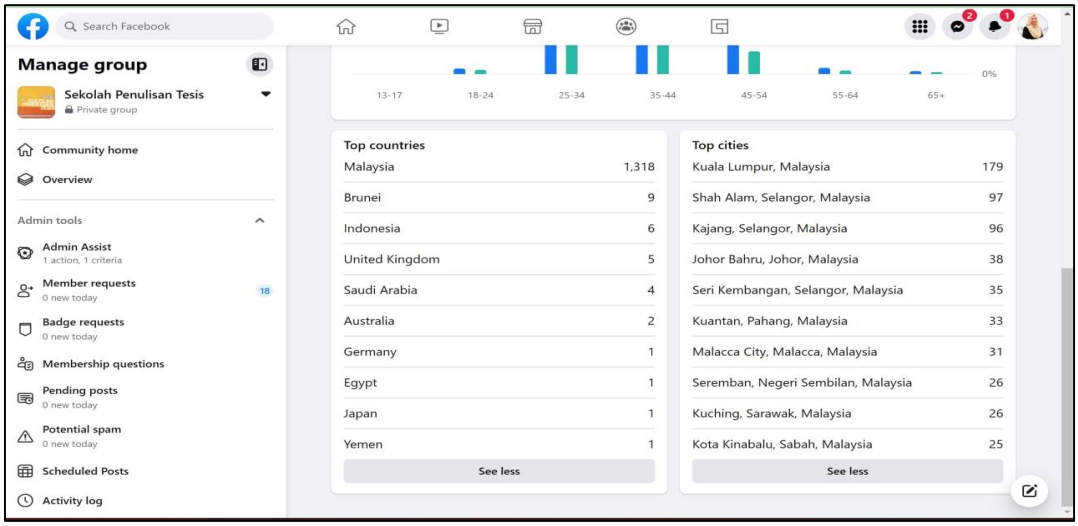


Figure 2 VSSPT 1.0 participants top 10 countries and top 10 cities

DESIGN AND DEVELOPMENT OF VSSPT 1.0

There are three main topics for VSSPT 1.0, namely motivational, technical, and social support. There are 31 topics covered by 30 panels under VSSPT 1.0 as shown in Appendix 1. These are the criteria for the selection of VSSPT 1.0 content:

a. The content selection is relevant to the postgraduate students chosen based on the experience of the panel, and the issues raised by postgraduate students on their social media. Panels comprised 30 experienced academics specialising in giving motivation and giving guidance as preparation for Master and Ph.D. students.

b. The topics are grouped under three basic skills namely technical skills, building students' support ecosystem, and motivation. The platform for VSSPT 1.0 was a secret Facebook group. The duration of each lecture is at least 45 minutes.

c. The recordings of the videos are done via self-recording by the panels or were done by VSSPT 1.0 team in a studio or at the panel's office. Each panel is given a month to do the recording of the lectures. If the recordings are done by the panel, they upload in a Google drive link given for compilation. The folder link will be given via WhatsApp. All the panels are in WhatsApp groups so that they know the latest information on the programme.

d. The participants have their separate WhatsApp groups and can interact with each panel during the screening date on the secret Facebook group. The panels are encouraged to be in the virtual lecture hall during the screening of their respective videos to address any comments and questions.

e. VSSPT 1.0 online lecture halls are open for a year, namely until 11 November 2022. The participants can watch and ask questions anytime during the time. VSSPT 1.0 lectures can only be accessed on Facebook Secret Group by paid members. The duration of recordings of the videos lasts about an hour for each topic. The videos can be accessed for a year.

f. List of Panels and topics for Virtual Summit Sekolah Penulisan Tesis (VSSPT 1.0 - 2021/2022) (Appendix 1)

NOVELTY OF VSPPT 1.0

This virtual summit based on a secret Facebook group is new in Malaysia. The lectures were recorded in Bahasa Melayu to cater to the needs of the participants' first language. However, there are other participants from other countries, who might be native speakers of Bahasa Melayu or understand Bahasa Melayu as the medium of instruction and engagement. Another interesting feature of VSSPT 1.0 is the giveaway by panels. After each session was aired in the morning, the panel will have an interactive session in the evening and choose lucky winners to be given prizes. These elements are unique and innovative.

COMMERCIALIZATION POTENTIAL OF THE PRODUCT

VSSPT is a commercial product as all participants paid a fee based on different tiers. The super early bird starts at RM98.00 Affiliates can earn a commission for each tier.

CONCLUSION

Pho and Schartner (2019) and Ramchander (2022) found that positive institutional and non-institutional support networks have a significant impact on international postgraduate students' academic journey. The huge success of VSSPT 1.0 can be attributed to providing an online e-training to fulfil the needs of postgraduate students to engage and reach out for social support. Wan Zumusni (2009) asserts that access issues have haunted the field of adult education since its inception. Online training using a social media platform in a nonformal and informal setting, presents both opportunities and challenges to adult educators. By facilitating adult learning in such settings, VSSPT 1.0 maximises the potential of the platform to overcome social and cultural barriers. VSSPT 1.0 can be accessed instantaneously at any time without requiring the participants to travel for the lectures or be at a certain place at a specific time. During the pandemic, the concept of e-training is no longer novel among Malaysian adult learners. E-training is welcome especially for women with young children, just starting their careers and must work hard to prove their capability and at the same time juggle work and personal obligations. Travelling even for a day or two would require a lot of planning and arrangement for a babysitter. In addition, not many of them have the luxury of time or having maids at home to help them with house chores. E-training gives them the flexibility to learn anytime and anywhere and this is what VSSPT 1.0 offers.

REFERENCES

Pho, H. & Schartner A. (2019). Social contact patterns of international students and their impact on academic adaptation. Journal of Multilingual and Multicultural Development, 42 (6), 419-502.

Ramchander, M. (2022) A systematic literature review of challenges experienced by international postgraduate students and implications for supervisory practice at South African Universities, Africa Education Review, DOI: 10.1080/18146627.2022.2070507

Wan Zumusni Wan Mustapha, Norizan Abdul Razak, & Husin, S. (2009) Acculturating lifelong learning among academicians using E-training: Unearthing the challenges using narrative analysis. Proceedings of International Conference on E-learning. 1-2 December 2009.

APPENDIX 1 LIST OF PANELS AND TOPICS COVERED IN THE RECORDED LECTURES

1. Mencipta Rantaian Sukses dengan Ilmu

2. Pendakian Gunung PhD - Dugaan Tanpa Duga

3. Mengurus Masa, Kewangan dan Rasa (Emosi) - Cabaran dan Halangan

4. Merisik dan Meminang Supervisor dan Jawatankuasa Penyeliaan

5. Impian vs. Realiti Dunia Pasca Siswazah - Dalam Fail Kaunselor

6. Sertai Kumpulan Sokongan

7. Kerangka Metodologi Kajian: Kualitatif dan Kuantitatif atau Metod Campuran

8. Graduate on Time (GOT) - Tip dan Teknik Tulis Tesis Cepat

9. Merangka Tesis dengan Kaedah "START MC"

10. Merancang Jurnal Pertama - Kertas Konseptual Menjadi Jurnal

11. Kuantitatif : Kemahiran Analisis dan Interpretasi Data

Tema: Teknikal

12. Kajian Kualitatif dan Analisa Temubual

13. Software Starter Pack - Pemudahcara Penyelarasan Tesis

14. Perisian Mudah untuk Kuantitatif

15. Perisian Mudah untuk Kualitatif

16. Tawaran di Pusat Latihan Pascasiswazah

17. Pencarian Artikel - Penggunaan Mendeley

18. Pembangunan Instrumen

19. Pengenalan kepada "Systematic Literature Review (SLR)"

20. Keperluan Konferens dan Penerbitan dalam Pengajian PhD

21. Slaid Pembentangan - Keep It Simple and Smooth

22. Pertandingan Inovasi - Keperluan atau Kehendak?

23. Penulisan Penyelidikan

24. Dana, Geran dan Bantuan Kewangan - Rapati Pensyarah Bidang

25. Keperluan Pruf dan Terjemahan Bahasa

26. Asas Pengenalan Data Coding & Data Entry

27. Viva Voce - Persediaan dan Persembahan

28. Viva Verdict - Apa yang Pemeriksa Mahu?

29. Keperluan Sistem Sokongan yang Padu - Pengalaman 10 Tahun Peneman PhD Fighters!

30. Susahkah 'Formatting' Tesis Sendiri?

31. Daripada Tesis Menjadi Buku

32. Swaterbit Tesis Anda, 'Doc!'

33. PhD Tanpa Penyelia

26

Designing Google Site as a Learning Platform for Statistics Course

[1] Zuraida Jaafar. [2] Mahfuzah Mahayadin, [3] Norul Fadhilah Ismail, [4] Nur Ida Aniza Rusli

Faculty of Computer and Mathematical Sciences
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah

[1] zuraida@uitm.edu.my , [2] mahfuzah8255@uitm.edu.my
[3]norulfadhilah@uitm.edu.my, [4]idaaniza@uitm.edu.my

ABSTRACT

During the COVID-19 pandemic, the education system has changed dramatically with the rise of e-learning, where teaching and learning are taken remotely and on digital platforms entirely. The use of technology is integrated from traditional education to interactive learning to innovate and implement alternative ways of delivering knowledge and assessment strategies to ensure the learning process runs smoothly. STA408 is a challenging course as it involves many concepts and calculations that sometimes cause difficulty in identifying the correct formulas for setting up hypothesis testing and constructing confidence intervals. Therefore, we developed a digital learning platform through google site to facilitate student access to information related to STA408. Students can use this platform for self-learning and self-assessment because it is centralised and easily accessible to the course material. It consists of learning activities divided into course materials, course notes, past-year papers, applications, and self-review. This platform is suitable for interested students who have difficulties learning statistics. Online learning offers more flexible time where students can learn at their own pace, go back and re-read, skip or speed through topics they choose. It is hoped that the platform would enable students to learn statistics more effectively and develop a better understanding of the subject through interactive learning.

Keywords: online learning, digital platform, statistics learning, Google Site, interactive learning

INTRODUCTION

Online learning, sometimes known as distance learning or web-based learning, is the most recent and well-liked type of online education nowadays. It has recently become an integral part of many university programmes that are moving from conventional face-to-face classes into fully online web-based courses. The use of technology in education has become the most significant media for collecting, disseminating knowledge, and exchanging information to make teaching and learning more efficient and innovative and meet the learners' demands (Lea May et al., 2019).

Online education provides excellent opportunities and benefits for students and educators. It gives flexibility, cost-effectiveness, and convenience of time and space (Adebo, 2018). In terms of flexibility, it allows students to have a better understanding of themselves and schedule their learning activities appropriately. It is also cost-effective since online learning usually uses virtual resources, and less money is spent on textbooks. Additionally, it is convenient since it enables learning anywhere with internet connectivity and at any time.

Various e-learning platforms support online learning to create a flexible and convenient learning environment for students. For example, Google Sites is one of the most excellent tools for designing and developing course materials for students suitable for self-study. The use of Google Sites as an effective educational platform has been proven in many studies. It improves students' abilities and attracts students' interest and attention (Jusriati et al., 2021). According to Norelyn (2022), Google Site is an effective e-Learning tool as it helps in promoting student engagement, independent learning, convenience, time management, output submission, and a better and more beneficial experience in the learning environment. Moreover, the platform is freely accessible anytime and anywhere, easy to use, and features a user-friendly layout for students and educators.

In this study, Google Sites has been used to develop a one-stop centre that contains a collection of digital resources for the Statistics for Scientists and Engineering (STA408) course. This course introduces the students to basic and intermediate methods of data analysis. It emphasises the usage of descriptive and inferential statistics, including measures of central tendency, a measure of dispersion, correlation, regression, hypothesis testing, and analysis of variance. STA408 is a challenging course as it involves a lot of concepts, formulas, and calculations. Students often face difficulty distinguishing the correct formulas in setting up hypothesis testing and constructing a confidence interval. Therefore, this platform will facilitate students to access information related to STA408, overcome the difficulties in identifying the correct formula using Formula Detector, and develop a centralised platform with simple access to all course materials. It is hoped that the developed e-content through Google Site can reduce difficulties in learning and understanding statistics effectively and become the best medium for imparting knowledge between educators and students.

PRODUCT DESCRIPTION

The STA408 course site is a dynamic site where students can easily access the different accessible sections and materials. Depending on the size and capabilities of the gadget, the layout alters. This site can adapt to any screen size, including smartphones, tablets, desktop computers, and televisions, to enhance user experience.

The seven sections that make up the google site are the homepage, course materials, course notes and videos, past year papers, formula detector, calculation guidelines, and self-review tabs. The Formula Detector application is the new feature added to the site, which helps students select the correct statistical formula.

Figure 1 shows the tabs for the homepage and course content. The course synopsis, teaching methodologies, and list of references are all available on the homepage. In contrast, the course materials page lists the recommended textbook, statistics table, and formula appendix that can be utilized during the course.

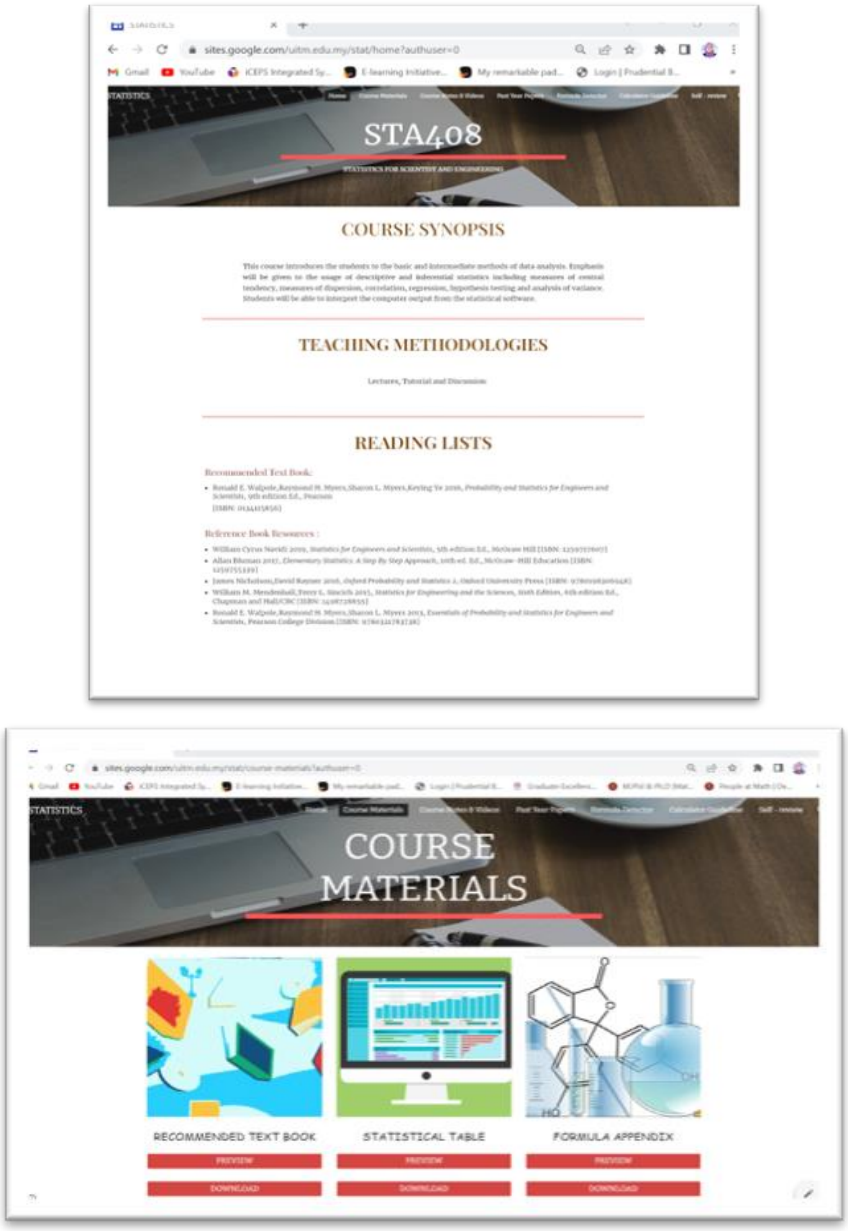


Figure 1 The interface of the Homepage and Course Materials tabs

Figure 2 depicts the interface for course materials, course notes, and videos for students' self-learning. All materials have been saved in Google Drive and made open-shared to allow students to access the resources through the Google site without a password. The interactive resources created by the lecturers can grab students' interest and improve their grasp of the subject matter. The resources are available for students to browse and download for later use as references. Even though they have a poor internet connection at home, they can still view the course materials. Students can download examples of final exam questions and answer schemes under the Past Year Papers page for their self-evaluation.

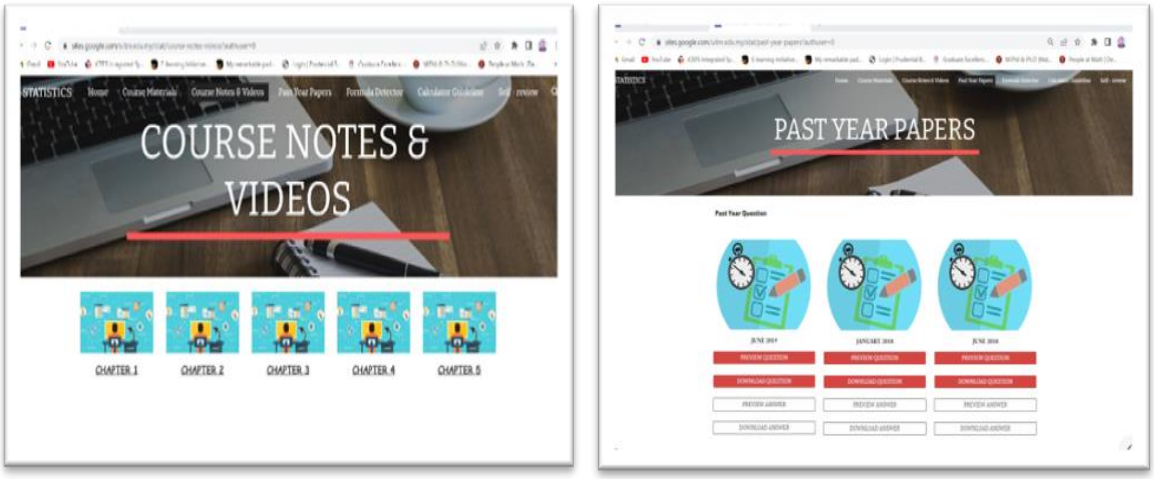


Figure 2 The interface of Course Notes & Videos and Past Year Paper tabs

Statistical software has been developed using Google Sheets and is now available as a new feature called Formula Detector, as depicted in Figure 3. To view the correct statistical formula to be applied, students must enter the question category, term tested, number of samples, population variance, and sample into the application and click the Result button. The formula detector will provide students with an instant answer.

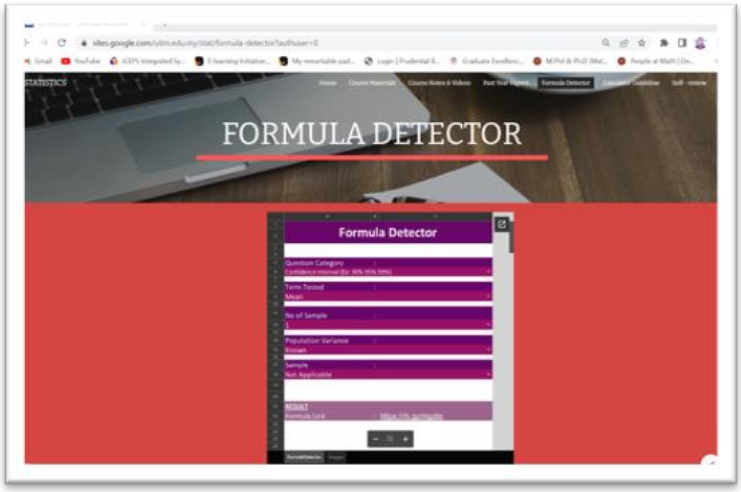


Figure 3 The interface of the Formula Detector tab

Additionally, videos on this google site demonstrate how to use a scientific calculator to compute mean and variance and sets of questions for self-evaluation. Students can browse the site at their own pace according to their own interests and learning preferences.

THE NOVELTY OF THE PRODUCT

This research's novelty includes exploiting an e-learning platform for digitalizing STA408 materials. The platforms can provide students with flexibility and self-paced learning settings as the subject is presented in theoretical and practical concepts. The Google Site allows free access to STA408 course materials, ensuring that the knowledge is fully conveyed to the students.

Another novel aspect of this research is the development of a formula detector using Google Sheets. Due to difficulties in applying the right formula, this research constructs a formula detector to assist students in finding the correct statistical formula, utilising inputs such as confidence interval, term

tested, number of samples, and population variation. With its integration into the Google Site, the tool is readily available to students with free access.

COMMERCIALIZATION POTENTIAL OF THE PRODUCT

Using Google Sites for this research has fostered creative and effective teaching and learning by bringing technology, educational pedagogy, and content knowledge together in a new form. This e-learning platform has the potential to be commercialised and available to all students enrolled in STA408 or other equivalent statistics courses. The platform provides lecturers and students with easy access to lecture notes, video recordings, past years' exam papers, and extensive use of the Formula Detector tool. In addition, UiTM lecturers and other institutions that teach statistics can adapt this platform to their teaching and learning model.

REFERENCES

Jusriati, Nasriandi, Kurniadi, W., Ratna. (2021). The implementation of Google site as an e-learning platform for teaching EFL during the COVID-19 pandemic. English Review: Journal of English Education, 10(1), 129-138. https://doi.org/10.25134/erjee.v10i1.5363

Norelyn, H. D. (2022). Maximum Utilisation of Google Sites (MUGS) in Teaching English for Academic and Professional Purposes. Asian Journal of Applied Research for Community Development and Empowerment 2022, 6(3), 68-72. https://doi.org/10.29165/ajarcde.v6i3.109

Lea May. L. A., Daryl, J. A. P., Tyra, F. T., Monera, A. S., Rizalina, G. G, Edna, B. N. & Chokchai, Y. (2019). Development of Webquest using Google Site in Teaching Circulatory System. IOP Conf. Series: Journal of Physics: Conf. Series 1340 (2019) 012060. doi:10.1088/1742-6596/1340/1/012060

Adebo, Philip. (2018). Online Teaching and Learning. International Journal of Advanced Research in Computer Science and Software Engineering. 8(2), 73-75. doi:10.23956/ijarcsse.v8i2.549

27

Making Grammar Practices Interactive through Quizizz

Siti Nur Dina Mohd Ali
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
dina8394@uitm.edu.my

Mohd Hafizul Ismail
Universiti Kuala Lumpur
Malaysian Institute of Information Technology
mhafizul@unikl.edu.my

Abstract

The outbreak of COVID-19 pandemic requires the teaching and learning in universities to be conducted online. There is a shift from traditional paper-and-pen method to online-based teaching due to the growing popularity of online learning. This has affected the implementation of assessments which includes in-class exercise, presentations, and quizzes. Since learning activities take place online for most subjects taught in the university, it has impacted English subjects particularly in grammar lessons. Learning grammar is indeed challenging for students as they need to understand the rules and structure to fully master the content. More practices needed for students to become proficient in the grammar concepts. However, the traditional approach merely focuses on the practices which are dull and less interactive to engage students completing the practice. Due to this, there is a need to create a fun and interesting environment to make grammar practices more interactive through a digital platform. To serve this purpose, Quizizz was selected as a platform for students to perform grammar practices online anytime and anywhere. This web-based application allows students access the practices using their preferred devices such mobile phones, tablets, or computers. The easy access nature of the practices is indeed practical for students to self-monitor their own learning pace. This platform bridges the gaps that most students face when it comes to learning grammar for its complexity. Thus, using Quizizz as an interactive platform for online grammar practices strengthens students' engagement in the classroom.

Key words: Quizizz, grammar, online learning, COVID-19

INTRODUCTION

The outbreak of COVID-19 pandemic requires the teaching and learning in universities to be conducted online. Due to this, online learning has increased in popularity worldwide which caused the shift of traditional paper-and-pen methods to online-based teaching of the education system in Malaysia. For English subjects, learning grammar is deemed challenging especially in a virtual environment as grammar consists of a set of rules and systems to construct sentences. Without these systems, a sentence of clear and explicit meaning cannot be meaningfully formed (Larsen-Freeman, 2021). Therefore, English instructors are always looking for the best method to improve the quality of English proficiency. Most students typically learn English grammar via textbooks or worksheets by completing sentences with the correct grammatical forms. Therefore, it is important to encourage students to learn grammar through an interactive platform that incorporates games, sound effects, images, and authentic contents relevant to the students' context (Fadhilawati, 2021).

Technology-assisted teaching tools have enhanced the variety of assessments that educators can create, adapt, and use in the classroom. Online digital tools provide useful ideas in creating interactive online practices that benefit the educators in creating class materials and practices. Some learning platforms provide useful data about the students' overall scores which can act as a reference for class instructors to prepare lesson plans and teaching materials based on their backgrounds. These educational learning tools such as Quizizz, Kahoot and Quizlet offer varied features that integrate new possibilities for students to practice their skills both in and outside class hours.

With a mission to motivate students at large, Quizziz has become a prominent web-based learning platform for educators to spice up their online teaching. Founded in 2015 by Ankit and Deepak while teaching remedial mathematics at a school in Bangalore, India, Quizziz has shaped the teaching and learning environment. As the COVID-19 strikes in, online learning has taken place in most education sectors, and online assessment has also changed to no paper-pencil policy being administered to students.

The innovation is developed to facilitate students' learning in meaningful ways at their own pace particularly in completing exercises. Since the setting of the platform varies according to the purpose of the content, the content designer can edit the content to cater the needs of the users. Hence, the objectives of developing the innovation are as follows:

a. To provide interactive learning activities on grammar using Quizizz.

b. To provide learning activities which can be accessed online.

To provide interactive learning activities on grammar using Quizizz.

The project is developed for diploma students (Semester 1), UiTM Cawangan Negeri Sembilan, Kampus Kuala Pilah. These students are enrolled in an English course, Integrated Language Skills 1.

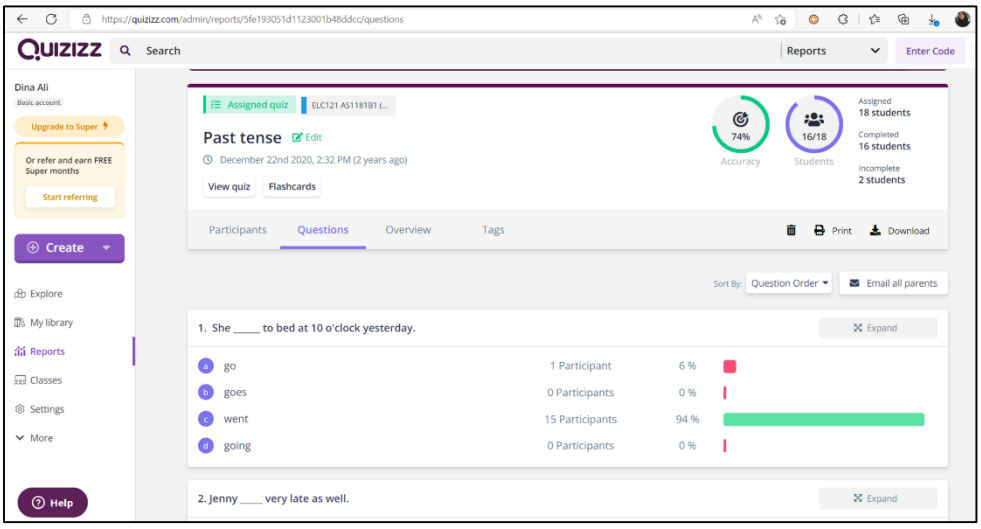


Figure 1 The interface of Quizizz

DESIGN AND DEVELOPMENT OF THE PRODUCT

This project aims to provide students an online platform to complete grammar practices via Quizizz in interactive and meaningful ways. Since learning grammar is difficult due to complex rules and contexts, Quizizz mediates the students' learning experiences in different ways. Students can monitor their own

progress as Quizizz reveals the scores shortly after the students have completed the practices. Completing grammar activities in such manners can create a meaningful and enjoyable learning experience while they make attempts to answer the questions. This activity will make them more motivated to complete grammar practices as they can identify their actual performances through the leaderboard and summary report upon completing the task. This encourages the students to practice more and indirectly improve their own learning.

The project is designed based on the ADDIE model to create effective course materials. The ADDIE process represents five stages of instructional design planning which are Analysis, Design, Development, Implementation, and Evaluation. The model is selected due to the systematic and easier approach to learning. The learning theories embedded in this study is behaviourism. It is learned that most students perform best from the external factors (i.e. rewards and punishments) rather than internal factors. This theory postulates that repeated actions, rewards, and punishments shape the learning process. The use of feedback, for example, reinforces desirable behaviours and indirectly eliminates negative behaviours (Ertmer & Newby, 2013).

Quizizz motivates the students to do practices more as it encourages them to participate in the session and make several attempts to complete the practice. This encourages active participation on the part of the learners as they can improve their performance on their second attempts. As learners have different levels of proficiency in learning grammar, this allows low-proficiency students to further develop their own learning target if they might not be able to achieve their desired scores on their first attempts.

With regards to the cost and time spent in developing the materials, the designers took around two days to select suitable topics needed for the practices and outline necessary designs from the ready-made template available. No cost involved in developing the materials since the platform is free and works with different browsers, including Android and IOS operating systems (Permatawati & Permana, 2019). With its user-friendly interface, Quizizz can assist class instructors assessing their students' progress in language learning.

Quizizz is one of educational applications that applies the concept of gamification embedded in the practices. It has some interesting features such as avatars, music, leaderboard, memes (i.e. Figure 3), and theme with a user-friendly interface that makes the students feel like they are playing a game. The instructors can monitor the students' activities through the report summary tab. The summary provides an overview of the questions that they least likely get them correct.

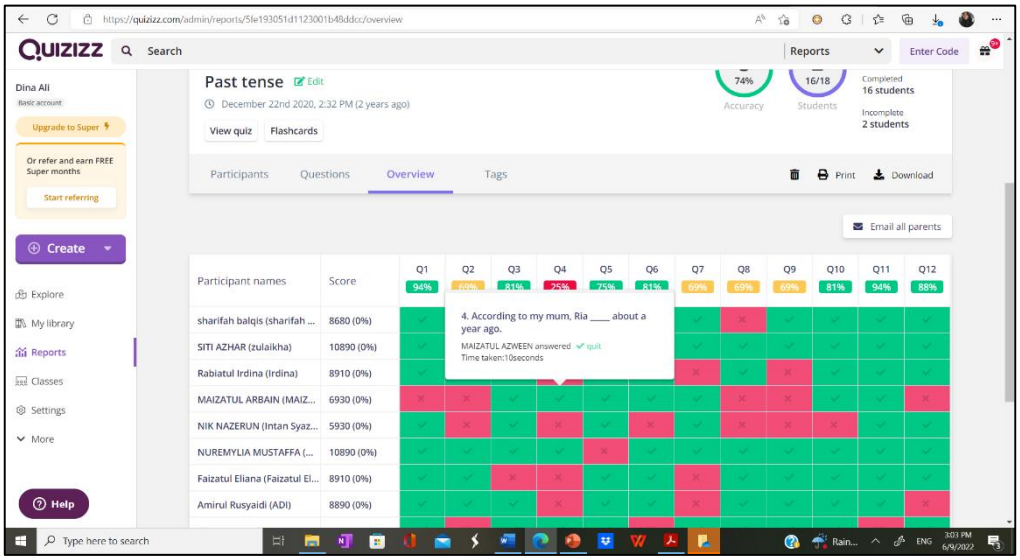


Figure 2 The user interface of the students' response

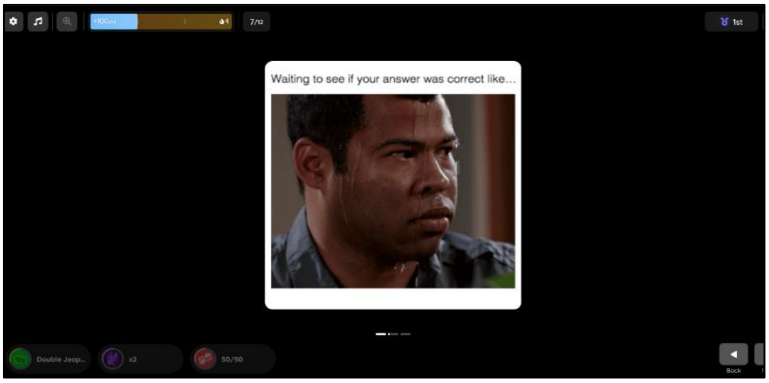


Figure 3 Example of memes from Quizizz

NOVELTY OF THE PRODUCT

This project is initiated to facilitate students learning activities on grammar for online learning. Since the project was conducted in October 2020, most diploma students in Semester 1, UiTM Kampus Kuala Pilah were still adapting to the new approach of teaching and learning. Most students found that learning grammar is challenging especially for low-performing students. With the Movement Control Order (MCO) employed by the federal government of Malaysia in 2020, all public and private institutions of higher learning and skills training institutions nationwide were closed. This drastic action had limited the movement of the public including university students. To keep learning on-going, there is a need to design online practices on grammar to ensure that all students are not left behind and manage to complete the task within the allocated time frame using their preferred devices such mobile phones, tablets, or computers. Since most traditional grammar practices involve paper-and-pen or plain grammar exercises, using Quizizz provides interactive ways with interesting user interface and layout in practising grammar skills. They have the flexibility to practise more and indirectly improve their understanding of the subject matter.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

This project is initiated to make grammar practices interactive using Quizizz. The uniqueness of this innovation benefits not only the students but also the class instructors in terms of managing the students' performance on certain topics from the summary report (refer Figure 2). It is learned that students achieve more particularly on grammar through the designated practices.

REFERENCES

Ertmer, P. A., & Newby, T. J. (2013). Behaviorism, Cognitivism, Constructivism: Comparing Critical Features From an Instructional Design Perspective. *Performance Improvement Quarterly*, 26(2), 43–60. https://doi.org/10.1002/piq

Fadhilawati, D. (2021). Using Quizizz Application for Learning and Evaluating Grammar Material. *Journal of Students Academic Research*, 6(1).

Larsen-Freeman, D. (2021). Teaching grammar. *Teaching in Challenging Circumstances*. Cambridge: Cambridge University Press

Permatawati, I., & Permana, P. (2019). Using Quizizz as a Formative Assessment Tool in German Classrooms. *Advances in Social Sciences, Education and Humanities Research*, 4(24)

28

Student-Centred Learning Online Classroom Activity For a Workplace Communication Course

Nazira Osman
Akademi Pengajian Bahasa, Universiti Teknologi MARA
Cawangan Perlis, Kampus Arau
naziraosman@uitm.edu.my

Fazmawati Zakaria
Akademi Pengajian Bahasa, Universiti Teknologi MARA
Cawangan Perlis, Kampus Arau
fazmawati@uitm.edu.my

Latisha Asmaak Shafie
Akademi Pengajian Bahasa, Universiti Teknologi MARA
Cawangan Perlis, Kampus Arau
ciklatisha@uitm.edu.my

Mahani Mansor
Universiti Teknologi MARA Cawangan Perlis
Kampus Arau
mahani@uitm.edu.my

Tuan Sarifah Aini Syed Ahmad
Akademi Pengajian Bahasa, Universiti Teknologi MARA
Cawangan Negeri Sembilan, Kampus Seremban
tsyaini@uitm.edu.my

Yang Salehah Abdullah Sani
Akademi Pengajian Bahasa, Universiti Teknologi MARA
Cawangan Perlis, Kampus Arau
yangsalehah@uitm.edu.my

ABSTRACT

Online Distance Learning (ODL) at universities does not ensure students' involvement and participation. Therefore, a student-centred learning (SCL) online classroom activity was introduced for a workplace communication course. It is a fresh idea where students apply their research and presentation skills together with creativity, and collaborate with their group members to complete their online learning activity for the topic inputs covered in the course. The aim of this activity is to enhance students' involvement in the course by creating an activity that makes them find, organise, and present information in a group. This idea applies to a student-centred learning approach that requires students to be responsible, active, and collaborative in their own learning. Therefore, they may be more interested in class as they participate actively in their knowledge quest. The activity is also beneficial for the students' improvement of soft skills, which are deemed necessary for their future workplace. In fact, a survey revealed that the students perceived the activity as an enhancement of their communications skills and that it made them better understand the subject. This activity can be applied to any content-wise course and can aid instructors in covering topics in the syllabus. The instructors only act as

facilitators who help students' understanding by highlighting certain areas that require experts' explanation. It can be commercialised as a guide for course book publication and teaching training.

Key words: ODL, student-centred learning, workplace communication course, soft skills, Bloom's Taxonomy

INTRODUCTION

A student-centred online classroom activity for a workplace communication course is a fresh idea where students apply their research and presentation skills together with creativity in providing inputs for topics covered in the course. It is based on the Student-Centred Learning (SCL) concept and is suitable to be used in a workplace communication course that emphasises interpersonal skills for professional development.

The objectives of carrying out the activity are:

a. To enhance students' involvement in the course.
b. To enable students to find, organise and present information in a group.
c. To stimulate students' understanding and creativity and to improve students' soft skills

The components in the activity are relevant to the lower thinking skill orders in the revised Bloom' s Taxonomy where students remember, understand and apply concepts. These are deemed necessary in the beginning of the course. The activity also helps the students to equip themselves with four crucial soft skills in the 21st century which are critical thinking, creative thinking, communication and collaboration, or known as the 4Cs. The skills are essential for students' success in today's world.

The SCL online activity is targeted at undergraduate students who are taking a course on workplace communication. The innovation has been implemented for two groups of students taking the course known as English for Professional Interaction (ELC650) at Universiti Teknologi MARA (UiTM) Perlis Branch.

A survey on the effectiveness of the activity was conducted on 40 students at UiTM Perlis Branch using purposive sampling. The results are presented in Figure 1 showing the percentage of agreement with the items. The results suggest that the activity may be effective to be implemented in ODL classes for increasing students' engagement, promoting learning and improving the 4Cs.

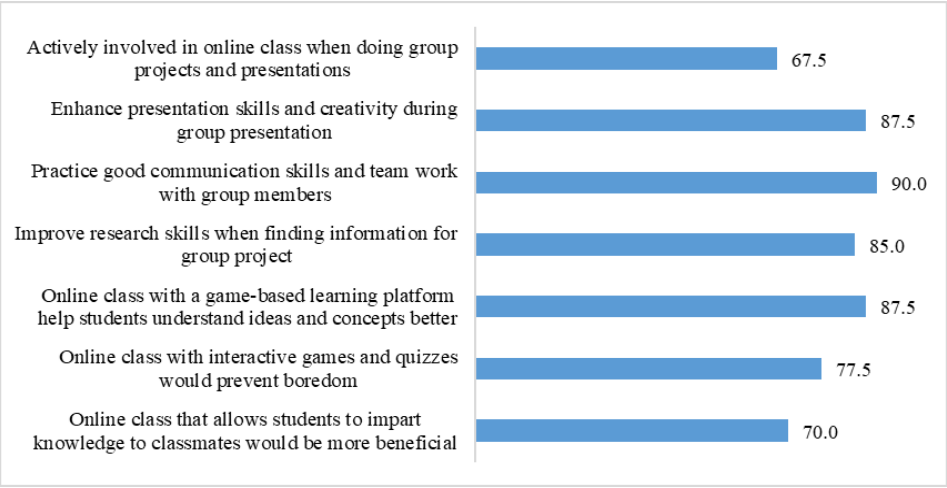


Figure 1 Students Perceptions on the SCL Online Classroom Activity

DESIGN OF THE FRAMEWORK FOR A SCL ONLINE CLASSROOM ACTIVITY

A SCL online classroom activity for a workplace communication course was designed as a classroom activity that focuses on developing students' interpersonal and communication skills for future professional growth at the workplace. For this purpose, the students were put in groups so that they can practise interpersonal skills collaboratively. Presenting ideas is crucial at the workplace, thus, each student was provided with an opportunity to speak clearly and effectively during a group presentation. The activity consists of one online presentation and online quizzes. The activity is divided into seven stages: 1) forming groups 2) understanding the course topic 3) conducting internet search for the topic 4) selecting and organising information 5) preparing presentation and quizzes 6) Presenting the assigned topic, and 7) handling the quizzes. The learning theory applied for the activity was the Student-Centred Learning. The theory is about bringing the classroom and students to life where instructors assist and guide the students in achieving the goals that have been agreed upon by both parties (Overby, 2011). It was deemed relevant for an activity that requires maximum participation from students.

The SCL online classroom activity applies the Bloom's Taxonomy in the cognitive domain. The taxonomy comprises six cognitive levels: (1) remember, (2) understand, (3) apply, (4) analyse, (5) evaluate and (6) create (Krathwohl, 2002). The SCL online classroom activity only applies three lower levels of learning outcomes in the cognitive domain of the Bloom's Taxonomy namely (1) remember, (2) understand and (3) apply. This is due to students need to remember, understand and apply concepts learnt in the course. Besides, the SCL online classroom activity also applies the 4C skills of the 21st century which are (1) creative thinking, (2) critical thinking, (3) communication and (4) collaboration. The 4Cs are critical for students' success in today's world as to prepare them for their survival at their future workplace (Happ, 2013; Sugiarto & Lestari, 2020). A SCL online classroom activity follows the following framework which involves seven steps as shown in Figure 2.

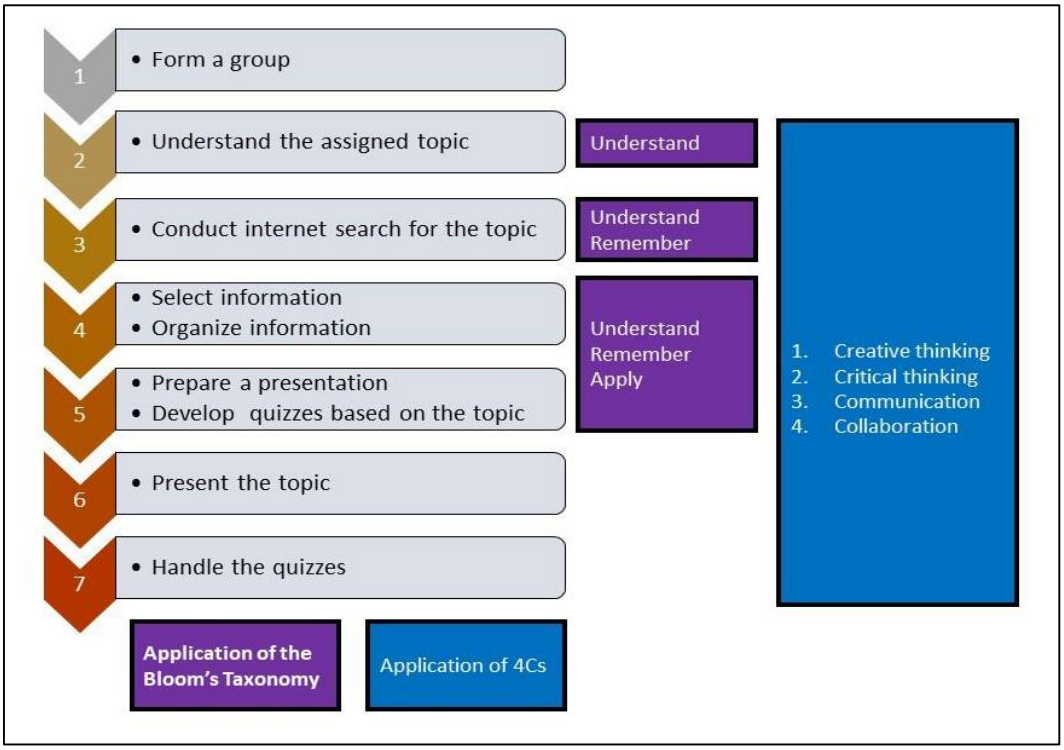


Figure 2 Framework of a SCL online classroom activity

The framework requires the students to collaboratively form groups (step 1), understand their assigned topic (step 2) and conduct internet search on it (step 3). In the process, they need to critically select relevant information and put it in an organised manner (step 4). With all the information at hand, the students can then prepare a group presentation whereby all the information is put creatively into visual

aids (step 5). They also need to develop questions for quizzes (step 5). As part of the framework, the students are then given a suitable length of time to present and communicate ideas for their assigned topic to the class (step 6). After the presentation, they can provide the quizzes to the class in whichever way they prefer (step 7). Throughout the process, the students are expected to attain Bloom's Taxonomy levels of 1 (understand), level 2 (remember), and level 3 (apply). The framework allows the students to practise creative thinking, critical thinking, communication, and collaboration skills.

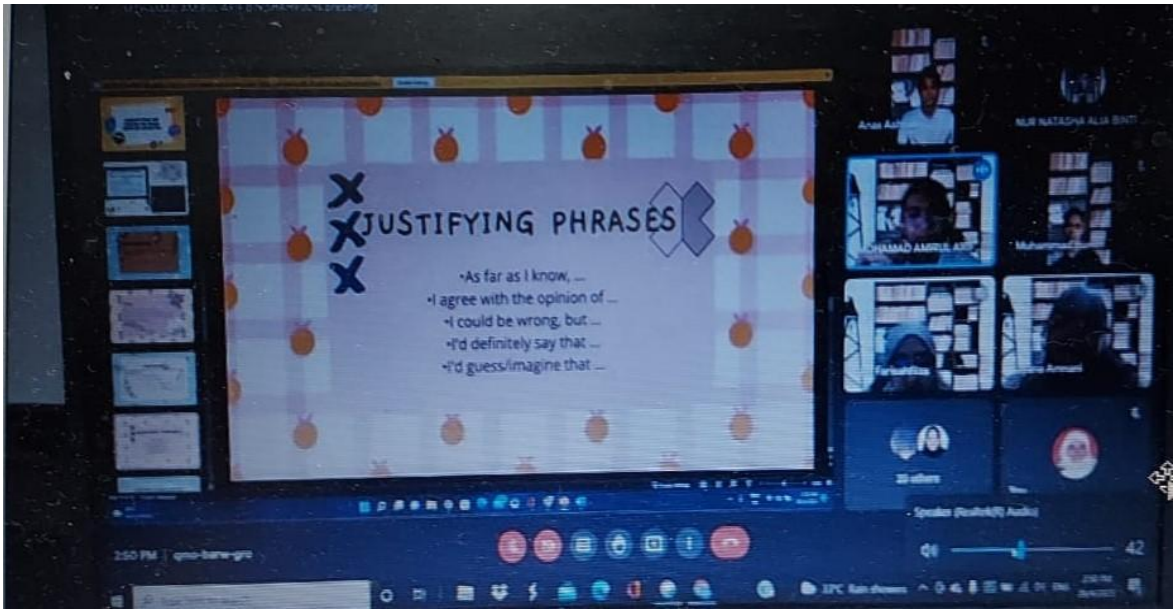


Figure 3 Sample of a SCL online classroom activity

NOVELTY OF THE PRODUCT

The framework is novel in a way that it may facilitate instructors to enhance active and autonomous learning in just a single group project. It also helps instructors to develop creative and improved online activity for learners' future professional goals.

The framework supports student-centred learning, where the students take control and decide what they need to learn more about and how they want to learn it. The instructors guide and motivate them with the relevant and supportive learning environment. The learners are then to be responsible in their quest to seek information and evaluate their understanding.

Students in a student-centred classroom are encouraged to take part in activities that promote creativity, critical thinking and engagement level. Problem-solving activities, critical-thinking exercises and simulations are some of the best ways to help students expand their capacity to learn and develop their personalities.

Having the necessary soft skills is essential for learners to function well in the society i.e. to be adaptable and flexible. Small group projects, discussions and presentations help increase self-confidence, motivation and engagement level. The students may also enhance their reasoning and negotiating skills.

COMMERCIALIZATION POTENTIAL OF THE PRODUCT

Because of its novelty, the framework can be copied and used in any educational research, teaching, and learning activities. It has the potential to be commercialised in terms of providing a step-by-step guide in using the framework in the form of a printed textbook for both instructors and students. The

book can be a guidebook for instructors or a course book for students. Apart from that, the printed book can be turned into an e-book if the higher education institutions prefer eBooks rather than traditional printed books. Having choices on the mode of delivery enhances the versatility of the book.

Furthermore, training on using the framework can be implemented in micro-credential courses where learners can enrol for workplace communication purposes. The course can be opened for university students and lifelong students. Companies can send their workers to attend the courses. Universities can generate their income through the courses and companies can save money as they can only send those who need training to attend such courses. The courses can be enrolled through massive, open, online courses (MOOC). Organisations will save time as their employees can attend the courses when they are free.

REFERENCES

Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. Theory into Practice, 41(4), 212-218.

Happ, D. W. (2013). Results of a survey of 21st century skills of communication, collaboration, critical thinking, and creativity (Publication No. 3575592). [Doctoral dissertation, American International College]. ProQuest Dissertations and Theses Global.

Overby, K. (2011). Student-centered learning. ESSAI, 9, Article 32. http://dc.cod.edu/essai/vol9/iss1/32

Sugiarto, E. & Lestari, W. (2020). The collaboration of visual property and Semarangan dance: A case study of student creativity in 'Generation Z'. *International Journal of Innovation, Creativity and Change*, 10 (12), 100-110. https://www.ijicc.net/images/vol10iss12/101210_Sugiarto_2020_E_R.pdf

29

Students' Experience Using Google Site: UiTMNS Internship Course (UTIC)

[1] Nurdia Azlin Ghazali, [2] Md Nizam Udin, [3] Rosha Mohamed,
[4] Rossidah Wan Abdul Aziz, [5] Mat Salim Selamat

Faculty of Computer and Mathematical Sciences
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban

[1] nurdia040@uitm.edu.my, [2] nizam1558@uitm.edu.my, [3] rosha618@uitm.edu.my
[4] rossidah@uitm.edu.my, [5] matsalimselamat@uitm.edu.my

ABSTRACT

One of the priorities of educators in delivery of instruction and information to students is to offer an effective and efficient teaching and learning process especially in the internship course for final year students. This study aims to provide a one stop centre called UiTMNS Internship Course (UTIC) for the internship course. UTIC is a platform based on Google site that provides information and materials related with internships such as objectives of internship, important dates, evaluation forms and other related information. UTIC can be accessed by all internship users that include students, internship coordinators as well as academic and industrial advisors. Therefore, it is the aim of this study to explore students' experience in using Google sites called UTIC which was developed as a medium for delivering Industrial Training Course (MST699) to students in Faculty of Computer and Mathematical Sciences (FSKM) in UiTM Negeri Sembilan, Kampus Seremban. This study utilised a quantitative research design with descriptive statistics and a survey questionnaire. Based on a sample size of 74 students, it shows that most students strongly agreed that UTIC is a site where they can easily obtain information and download and upload documents. Hence, it makes the internship process more effective and smoother.

Keywords: UTIC, innovation, google sites, students' experience, internship.

INTRODUCTION

Internships are an excellent source of practical experience that allows students to gain workplace practical experiences and build a career path. Internship course refers to the placement of students in an organisation to conduct supervised practical training in their chosen industry, whether abroad or in the country, within a set period of time before they are awarded with a certificate, diploma or bachelor's degree. In Malaysia, industrial training is a mandatory requirement for students in Higher Education Institutions (HEI) to meet the requirements for awarding certificates, diplomas, and bachelor's degrees respectively (Kementerian Pengajian Tinggi, 2010). Generally, an internship aims to improve the level of students' soft skills. It provides an opportunity for the students to experience working conditions and greater understanding of professional demands and qualifications (Parveen & Mirza, 2012).

Internship offers the student a chance to bridge the gap between expectations developed in the classroom and the reality of the working environment (Verney et al., 2009). Organisations that are involved in an internship programme also benefit from it as internship programmes provide employers with a known pool of high-quality employees at a significant saving in recruitment costs (Gault et al., 2000). Besides,

the internship programme benefits the university as apart from being a student marketability tool, the university also receives feedback from employers regarding the quality of graduates produced by the university which allows the university to directly improve the quality of the curriculum offered by the university. Therefore, the evaluation of internship needs to be done carefully and meticulously to ensure that the effectiveness of the internship can be accurately measured.

Final semester students of Faculty of Computer and Mathematical Sciences (FSKM) in Universiti Teknologi Mara Negeri Sembilan, Kampus Seremban, are required to undergo an internship programme for 16 weeks as a requirement to obtain a bachelor's degree (Bahagian Hal Ehwal Akademik Universiti Teknologi MARA, 2015). There are many processes and information involved to complete the internship programme which begins with the preparation of important documents by students, from the application, and ends with the submission of a logbook and the internship report. Moreover, the process also involves the internship coordinator to conduct a briefing session, prepare a formal letter and supporting documents from UiTM for both students and organisations. Monitoring students during their internship is also part of the internship process where one academic supervisor will be assigned to each student by the internship coordinator to monitor students' performance and help them to resolve any issues. Students' performance will be evaluated by the academic supervisor assigned and the representative from the organisations or companies as well.

For the time being, the internship coordinators from all four programmes use various platforms for different purposes to administer MST699, the subject code for the internship programme. An application messenger such as WhatsApp and Telegram is used to communicate and share information to students. While teaching platforms such as Google Classroom and Microsoft Team are used to provide materials and formal letters to students. Email is used to communicate with the academic and industrial advisors to share materials and evaluation forms. YouTube is also used to share videos related to internships. Hence, a platform or one stop centre for internship called UiTMNS Internship Course known as (UTIC) has been developed to resolve this issue. Specifically, this study aims to explore students' experience in using Google sites called UTIC which was developed as a medium for delivering Industrial Training Course (MST699) to students in Faculty of Computer and Mathematical Sciences (FSKM) in UiTM Negeri Sembilan, Kampus Seremban.

A survey was conducted to FSKM students who enrolled in the Industrial Training Course (MST699) to discover the experience of students in using UTIC as a medium in delivering the MST699 subject. In this survey, a questionnaire was distributed using Google form to collect data on demographic profile and students' experiences, satisfaction and recommendation for UTIC enhancement. 74 respondents were asked to explore UTIC and then answer the questionnaire. The responses were interpreted using a rating scale from 1 (disagree) to 5 (strongly agree). The results were analysed using percentage. The result of the demographic profile for 74 respondents is summarised in Table 1. 18.9% of the survey respondents were male students, and 81.1% were female students. The students were from different programmes: CS241 (18.9%), CS247 (21.6%), CS248 (33.8%) and CS249 (25.7%).

Table 1
Students' demographic profile

Variable	Description	Frequency	Percentage %
Gender	Male	14	18.9
	Female	60	81.1
Programme	CS241	14	18.9
	CS247	16	21.6
	CS248	25	33.8
	CS249	19	25.7

Table 2 summarizes results of a survey on students' experience of UTIC. Upon analysing the data from 74 respondents, it was revealed that 52.7% of the students strongly agreed that they found UTIC very useful. 44.6% agreed to the same item, whilst 2.7% neither agreed nor disagreed that UTIC was very

useful for internship. It was also observed that the majority of the respondents strongly agreed and agreed that UTIC is easy to use, easy to access and provides up to date information.

Table 2
Students' experience using UTIC

Item	Strongly Agree (%)	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Strongly Disagree (%)
Very useful	52.7	44.6	2.7	0	0
Easy to use	54.1	45.9	0	0	0
Easy to access	58.1	41.9	0	0	0
Up to date information	55.4	44.6	0	0	0

Table 3 summarises results of a survey on students' perception on functionality and content of UTIC. It can be observed that 26% of respondents strongly agreed and 62.2% agreed that internship information was easy to find using UTIC. Majority of the respondents also strongly agreed (44.6%) and agreed (51.4%) that materials could be uploaded and downloaded easily using UTIC. By using UTIC, all information is placed at one stop centre and at one's fingertips. In UTIC, recorded videos on *Taklimat Latihan Industri* and *Skim Kesihatan* can be watched by the students at anytime and anyplace. For item *Multimedia can be accessed easily*, it was observed that 48.6% of the respondents strongly agreed and 47.3% of them agreed whilst 4.1% of them neither agreed nor disagreed.

With regard to helpdesk, the majority of the respondents strongly agreed (37.8%) and agreed (54.1%) that helpdesk could help answer their questions related to internship. Practically, internship students can send messages to their internship coordinator if they have questions to ask. But by using the helpdesk function in UTIC, students can easily find answers to frequently asked questions which can reduce the coordinator's time to answer similar questions. Thus, the internship coordinators can allocate or spend more time on other internship tasks. The respondents were also asked whether UTIC could allow interactive communication between all internship users. This study revealed that 35.1% of them strongly agreed, 51.4% agreed, 10.8% neither agreed nor disagreed, 1.4% disagreed and 1.4% strongly disagreed with the statement. Through this finding, the UTIC's function needs to be improved for effective interactive communication with internship users.

Table 3
Students' perception on function and content of UTIC

Functionality and Content	Strongly Agree (%)	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Strongly Disagree (%)
Information is easy to find	27	62.2	10.8	0	0
Materials can be uploaded/ downloaded easily	44.6	51.4	4.1	0	0
Multimedia can be accessed easily	48.6	47.3	4.1	0	0
Helpdesk can help answers question	37.8	54.1	8.1	0	0
Interactive communication between all users are allowed	35.1	51.4	10.8	1.4	1.4

Table 4 summarises the responses of students' satisfaction with UTIC. Most of the respondents were satisfied with UTIC. The respondents were in agreement that they would recommend the junior batches to use UTIC and use it to get internship information.

Table 4
Students' satisfaction

	Strongly Agree (%)	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Strongly Disagree (%)
I am satisfied with UTIC	37	37	0	0	0
I am pleased with the experience using UTIC	36	37	1	0	0
I will recommend my junior to use UTIC	37	36	1	0	0
I would use UTIC to get internship information	38	36	0	0	0

The respondents were asked to state recommendations for UTIC enhancement which are listed as follows:

a. Consider adding flowchart to demonstrate the process and steps to be taken as it is easier and faster to get information.
b. The helpdesk chat box is a bit lagged, and the screen is small when using a smartphone.
c. Provide listed companies that are available for industrial training.

DESIGN AND DEVELOPMENT OF THE PRODUCT

In the process to develop the platform for one stop centre known as UITC, two phases were involved: (1) creating a platform based on google site to help users to get information and materials needed for internship more efficiently; (2) conducting a questionnaire using Google form to determine the satisfaction of users using UTIC.

In the first phase, the process to develop a Google site for one stop centre is shown in Figure 1. In this Google site, there are seven menus included, which are, *Anjung, Mengenai Latihan Industri, Pelajar, Penyelia, Industri, Rakaman Taklimat* dan UTIC Helpdesk. For each menu, there are submenus to detail out the information. In the second phase of this study, a questionnaire was developed in four sections. It includes demographic background, students' experiences, satisfaction, and recommendations for UTIC enhancement. The results were presented and discussed in the previous section.

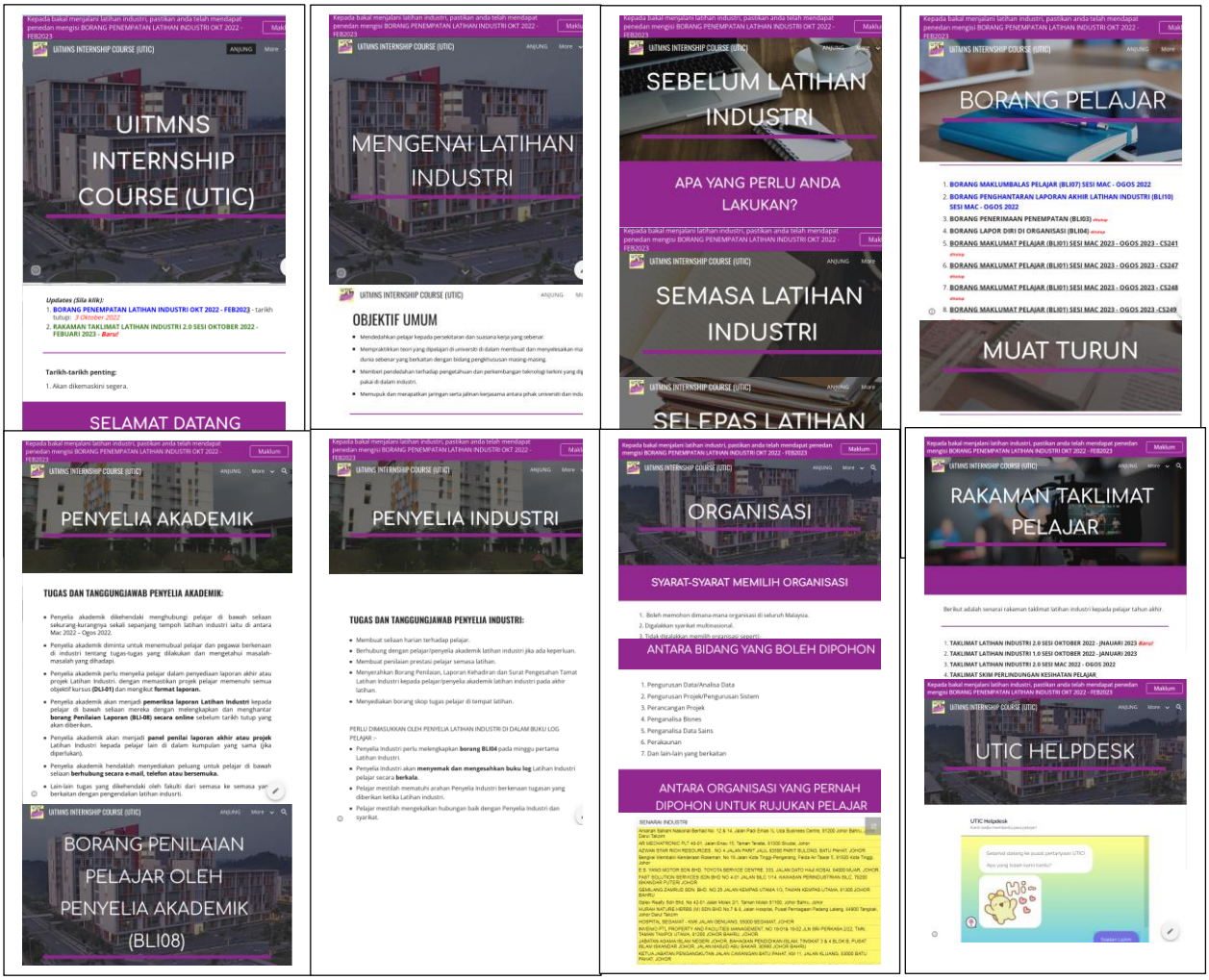


Figure 1 Screenshot of the UTIC site

NOVELTY OF THE PRODUCT

This new platform, UTIC, will assist all internship coordinators in terms of gathering data which will reduce time to manage the internship course. The platform also helps the coordinator to monitor students' performance and help them to resolve any issues during internship. UTIC can be used as a powerful one stop centre that provides a source of information related to internship, and a platform to download and upload documents to make the internship process more effective and smoother. Not only do UiTM members have the access, but industrial advisors from industry can also get access to this one stop centre for managing the internship course as well as giving marks using UTIC. Commercialisation potential of the product

COMMERCIALISATION POTENTIAL OF THE PRODUCT

UTIC has the potential to be commercialised to those who are involved in internship programmes in all the faculties in Universiti Teknologi Mara. Moreover, it can be a source of income to the faculty by selling advertising space to the industry.

REFERENCES

Kementerian Pengajian Tinggi. (2010). *Dasar Latihan Industri*. http://bpn.mypolycc.edu.my/bahan/BIPD-Dasar%20LI%20IPT%20(1).pdf

Parveen, S., & Mirza, N. (2012). Internship program in education: effectiveness, problems and prospects. *International Journal of Learning & Development*, *2*(1), 487-498.

Verney, T. P., Holoviak, S. J., & Winter, A. S. (2009). Enhancing the reliability of internship evaluations. *The Journal of Applied Business and Economics*, *9*(1), 22.

Gault, J., Redington, J., & Schlager, T. (2000). Undergraduate business internships and career success: are they related?. *Journal of Marketing Education*, *22*(1), 45-53.

Bahagian Hal Ehwal Akademik Universiti Teknologi MARA. (2015). *Polisi Latihan Industri Universiti Teknologi MARA.* Bahagian Hal Ehwal Akademik Universiti Teknologi MARA ShahAlam. https://inqka.uitm.edu.my/images/stories/IQA/circular/POLISI-LATIHAN- INDUSTRI.pdf

30

Telegram Group Video Chat: A tool for Online Distance Learning Activities

Norshida Hasihim
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
norshida5880@uitm.edu.my

Tuan Sarifah Aini Syed Ahmad
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
tsyaini@uitm.edu.my

Syahirah Almuddin
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
syahirah12@uitm.edu.my

Siti Nafisah Md Rashid
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
nafisah@uitm.edu.my

ABSTRACT

New technologies are constantly being introduced into the classroom as part of the evolution of modern education. Since the outbreak of COVID-19 in Malaysia, Universiti Teknologi MARA (UiTM) has applied an open and distance learning (ODL) approach, which allows students to interact synchronously or asynchronously and access learning materials via the Internet. Two common activities conducted in ODL are online classes via video conferences and sharing learning materials on any online platforms. There are numerous online video conference platforms available to support teaching and learning activities such as Zoom, Google Meet, Meet, and Telegram. While learning materials are typically shared on learning management systems such as UFuture, Microsoft Teams and Google Classroom or social media such as WhatsApp and Telegram. This paper aims to provide a guideline of using Telegram as a teaching tool for online classes and sharing learning materials as this application provides group video chat for video conferences and which channels for file sharing. Therefore, a comprehensive framework known as *Present and Share on Telegram* (PaST) was developed to describe the proper steps to use Telegram Group Video Chat for ODL for conducting online classes and Telegram Channel for curating the contents after Group Video Chat in order to facilitate the sharing of learning materials after online classes.

Key words: Telegram, group video chat, channel. online distance learning, guideline

INTRODUCTION

The COVID-19 pandemic has affected learning by changing the learning approach from face-to-face and blended learning to fully online learning in order to avoid physical contact. Therefore, Universiti

Teknologi MARA (UiTM) has implemented online distance learning (ODL). Among the most common activities conducted in ODL are online classes via video conferences and sharing learning materials on any online platforms. Numerous platforms are available for conducting video conferences such as Zoom, Google Meet, Meet, and Telegram. Whereas, learning material can be shared on learning management systems such as UFuture, Microsoft Teams and Google Classroom and social media such as WhatsApp and Telegram.

Telegram is a free application which is prevalently used for teaching and learning purposes during the COVID-19 pandemic (Solomon, 2021; Syifa, 2022, Sarwari et al., 2022). The most common ways of using it is by creating group chats and channels either private or public. The features allow users to communicate by sending messages and voice notes, and share files. Besides, other features allow more complex learning activities to be conducted such as Telegram bots (Aisyah et al, 2021) and Telegram polls (Aladsani, 2021). Therefore, Telegram is widely used for e-learning.

In June 2021, Telegram introduced Group Video Chat allowing 30 users to join and 1000 persons to view it at the same time (The Telegram Team, 2021). It allows users to share their screen to present their contents, record the session, mute/ unmute their microphone, and turn on/ turn off their camera. Group Video Chat sessions can be recorded (The Telegram Team, 2021). With the offered features, Group Video Chat can be used as an alternative for other video conference applications such as Google Meet, Zoom and Microsoft Teams Meet. To curate the learning materials such as PowerPoint slides and recorded lectures conducted via Group Video Chat, a channel can be created where students can access the shared learning materials. Therefore, Telegram can be used for conducting ODL activities. However, it is essential to have a proper guideline in using it to ensure that it can effectively support ODL Hence, a comprehensive framework named as *Present and Share on Telegram* (PaST) was developed. The development PaST is to:

a. To provide appropriate steps to use Group Video Chat.
b. To provide effective ways of curating learning materials after completing Group Video Chat in order to share them with students.

THE DESCRIPTION OF THE FRAMEWORK

Present and Share on Telegram (PaST) describes the appropriate steps to use Group Video Chat for ODL and effective ways of curating learning materials after completing Group Video Chat. Figure 1 illustrates the framework.

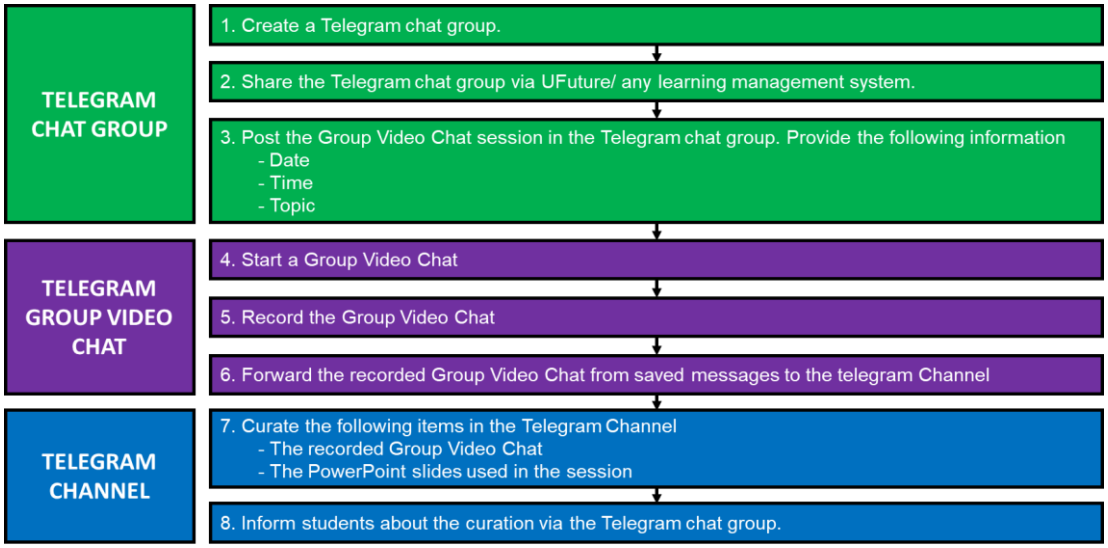


Figure 1 Framework of Present and Share on Telegram (PaST)

The following are the screenshots of the steps provided in the framework:

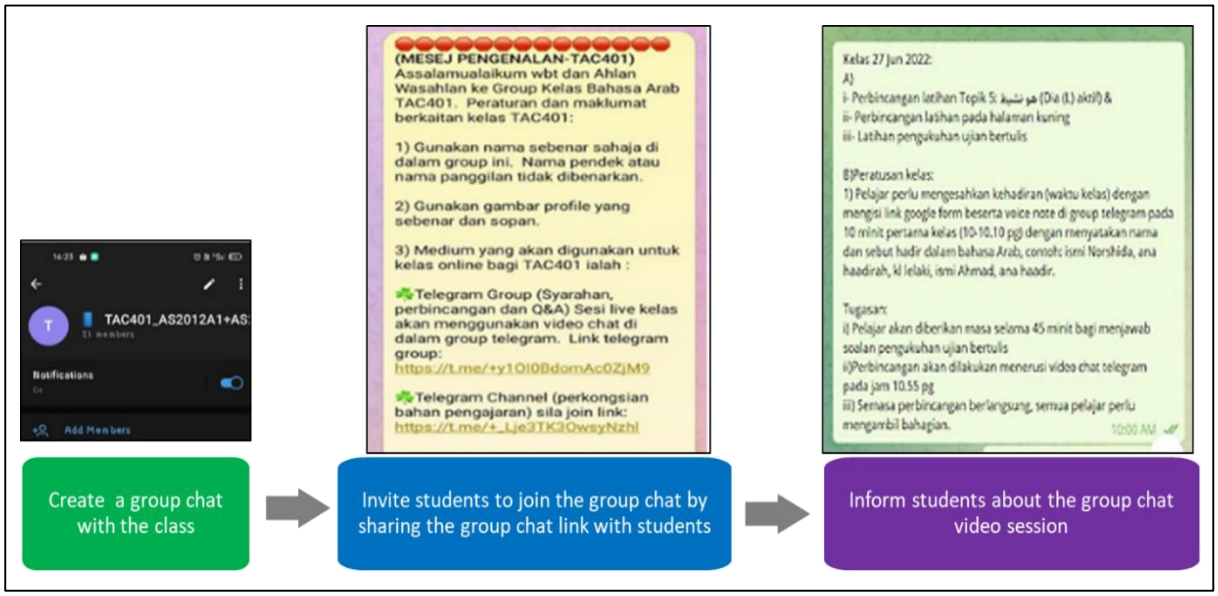


Figure 2 Screenshots of steps to set up Group Video Chat

Figure 3 Screenshots of steps to conduct a Group Video Chat

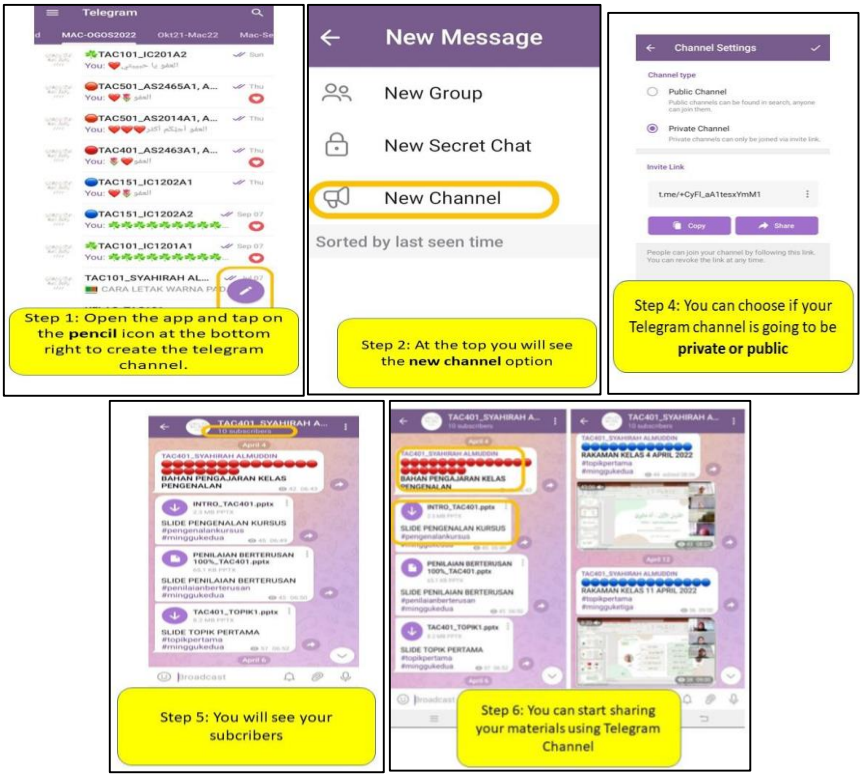


Figure 4 Screenshots of steps for sharing learning materials Telegram Channel

APPLICATION OF LEARNING THEORY

The development of the framework, *Present and Share on Telegram* (PaST) was developed based on the learning theory called the VAK Learning Style Model as learning contents are provided in the form of PowerPoint slides and lectures recorded on to support Telegram Group Video Chat as to support visual and auditory learners. According to the VAK Learning Style Model, students have different learning styles: (1) visual learners learn through seeing, (2) auditory learners learn through listening, and (3) kinaesthetic learners learn through doing (Elmomani, 2019).

NOVELTY OF THE PRODUCT

The framework only makes use of three Telegram features: Telegram group chat, Telegram video chat, and Telegram channel.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

The product has no commercialization potential. However, the product is advantageous to both instructors and students. Instructors can use Telegram to conduct a video conference for teaching and learning and the instructors can use Telegram to make announcements of the lectures and class schedules. It benefits students by providing a user-friendly platform for video chat and access to learning materials and they can easily send and receive any type of file.

REFERENCES

Aladsani, H. K. (2021). University Students' Use and Perceptions of Telegram to Promote Effective Educational Interactions: A Qualitative Study. *International journal of emerging technologies in learning*, *16*(9), 182-197. https://drasah.com/Archiving/website/0957202106053671.pdf

Aisyah, R. N., Istiqomah, D. M., & Muchlisin, M. (2021, March). Developing E-learning Module by Using Telegram Bot on ICT for ELT Course. In *5th International Conference on Arts Language and Culture (ICALC 2020)* (pp. 106-111). Atlantis Press. https://www.atlantis-press.com/article/125953366.pdf

Elmomani, J. A. (2019). Preferred cognitive learning patterns (VAK) among secondary students admitted to King Saud University and its effect on their academic achievement in Physics. *International Education Studies*, 12 (6) : 108-119.

Sarwari, K., Kakar, A. F., Golzar, J., & Miri, M. A. (2022). Distance learning during COVID-19 in Afghanistan: Challenges and opportunities. *E-Learning and Digital Media*, *19*(2), 144-162. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8883168/

Solomon, G. O. (2021). Perceptions of Students on the Use of Telegram during the COVID-19 Pandemic. *Acta Inform. Malaysia*, *5*, 21-24. http://doi.org/10.26480/aim.01.2021.21.24

Syifa, Q. A. (2022). The Use of Telegram Based E-learning for English Language Learning during The COVID 19 Pandemic. *Journal of English Teaching, Applied Linguistics and Literatures (JETALL)*, *5*(1), 89-96.

The Telegram Team. (2021, June 25). Group Video Calls. *The Telegram Team https://telegram.org/blog/group-video-calls*

31

Note-in-Poster Framework for Developing Engaging Learning Contents

Nor Haniza Hasan
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
norha207@uitm.edu.my

Tuan Sarifah Aini Syed Ahmad
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
tsyaini@uitm.edu.my

Zurina Zubir
Universiti Teknologi MARA Shah Alam
zurinaz@uitm.edu.my

ABSTRACT

Note-in-Poster (NiP) is a one-page poster in the landscape orientation which contains a specific learning content. NiP is a comprehensive learning material as the learning content is compressed by using onscreen text and static graphics to present the content in infographics, tables or charts which may aid comprehension. Besides, narration text (audio) is provided to explain the learning content. Therefore, students have the options either to read or listen to the note. NiP also provides additional information and interactive practice which are presented through links and QR codes. NiP can be used digitally or conventionally. To design and develop NiP systematically, it is essential to develop a framework for the development of NiP in order to ensure that NiP has the same features to support learning by providing a comprehensive, engaging and bite-sized note for students with different learning styles. Therefore, this paper explains the development of NiP framework based on several learning theories such as the VAK Learning Style Model and Cognitive Theory of Multimedia Learning. The novelty, usefulness and commercialisation of the NiP framework are also explained.

Keywords: learning styles, poster, interactive, multimedia elements, gamification elements

INTRODUCTION

Note-in-Poster (NiP) is a one-page digital note in the landscape orientation which is developed in the portable document format (PDF). It contains a bite-sized learning content which is presented by using onscreen text, narration text and static graphics. The content is simplified by using less onscreen text and some information related to the selected learning content is presented using static graphics in order to grab students' attention and ease comprehension. Onscreen text and static graphics support visual learners as students use the visual channel to access the learning content. Besides, narration text (audio) is also provided to present the same learning content as to support the auditory learners as the learning content is accessed through the auditory channel. As to support kinaesthetic learners, NiP also provides additional information related to the learning content provided and interactive practice to evaluate students' learning progress. Audios, additional information and interactive practice can be accessed via hyperlinks and a QR codes.

NiP is originally developed in the digital form of PDF. Therefore, it can be shared on any online platforms such as learning management systems, websites and social media. The links for audios, additional information and interactive practice are provided by using two alternatives which are hyperlinks which can be clicked and Quick Response (QR) codes which can be scanned using the QR code scanners on smart devices. Therefore, NiP is also suitable to be printed and used conventionally.

The idea to innovate NiP was initiated by the problems in using conventional books and ebook. They present a large amount of learning contents using lengthy text that may overwhelm students. Alternative ways are required as prior research indicated that conventional textbooks have caused difficulty in students' understanding of the content (Nastiti et al, 2018). Textbooks also do not support all sensory learning styles (visual, auditory and kinaesthetic). In addition, comprehensive frameworks for designing and developing interactive comprehensive notes which support sensory learning styles are limited.

The current students in the classroom are from Generation Z (Gen Z) who possess different learning preferences. Tuan Sarifah Aini et. al (2022) highlight three characteristics of Gen Z for instructors to consider in increasing students' engagement in utilising learning materials (1) short span of attention, (2) quickness in accessing information and (3) preference on multimedia. To meet the Gen Z characteristics, learning materials should be divided into small chunks or bite-sized which require less time to learn (Manning et al., 2021). To access learning materials quickly, they can be made available on the Internet. This is significant since Gen Z are digital natives (Fodor & Jaeckel, 2018), prefer online activities and advanced technology which provide ease of use (Nicholas, 2020).

Therefore, the objective of developing the NiP framework is to facilitate the design and development of comprehensive interactive notes which support all sensory learning styles namely visual, auditory and kinaesthetic and meet learning preferences of the generation Z. It also promotes the presentation learning content in bite-sized so that students may not be overwhelmed with the amount of content provided at a time.

DEVELOPMENT OF NiP FRAMEWORK

The development of NiP framework is based on the ADDIE Model. Figure 1 shows the phases of developing the framework which consist of five phases: analysis, design, develop, implement and evaluate.

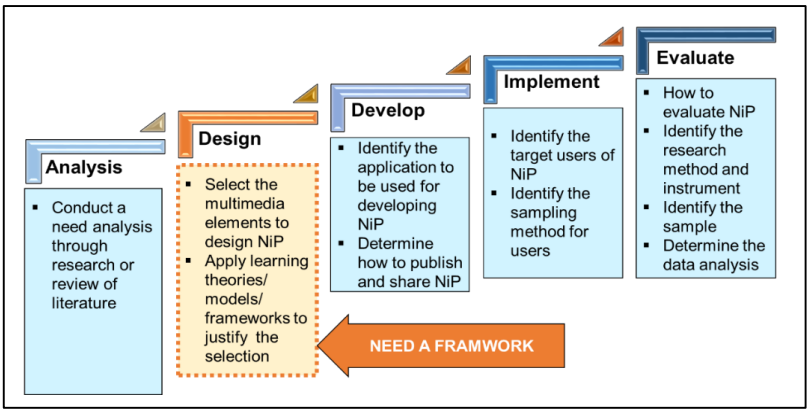


Figure 1 Development of NiP Framework

The NiP framework applies two learning theories which are the VAK Learning Style Model (Fleming & Mills, 1992) and the Cognitive Theory of Multimedia Learning. Figure 2 shows the NiP framework presented in the innovation competition in 2021. It was found that the framework lacks certain descriptions of features applied in the design and development of NiP. Thus, Figure 3 includes missing features which are not described in Figure 2. First, static graphics are used for presenting charts, icons, background and QR codes. Second, interactive practice and additional information are provided to

support kinaesthetic learners. Finally hyperlinks and QR codes are provided to access the narration text (audio), additional information and interactive practice. A sample of NiP is provided in Figure 4.

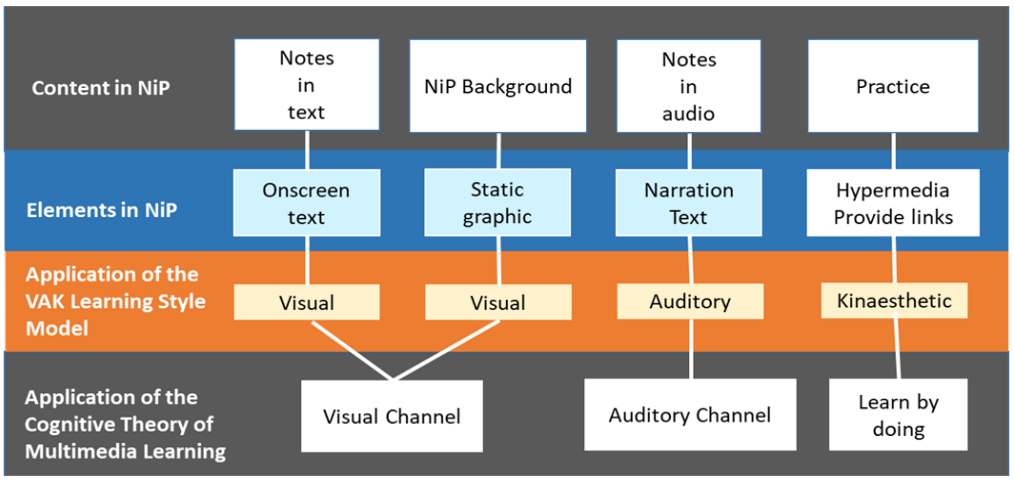


Figure 2 Original NiP Framework

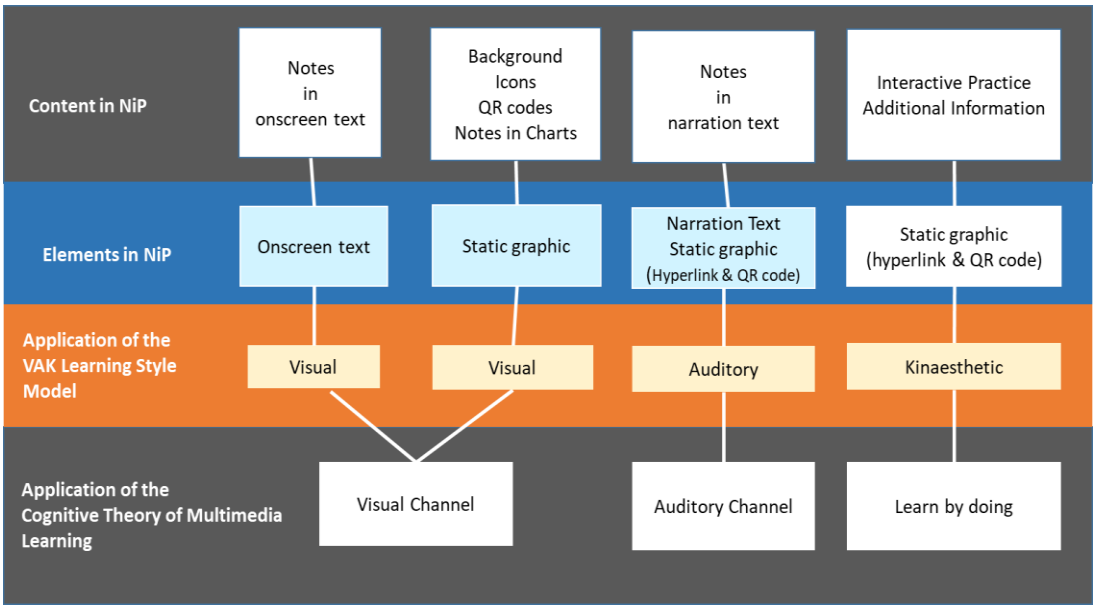


Figure 3 Improved NiP Framework

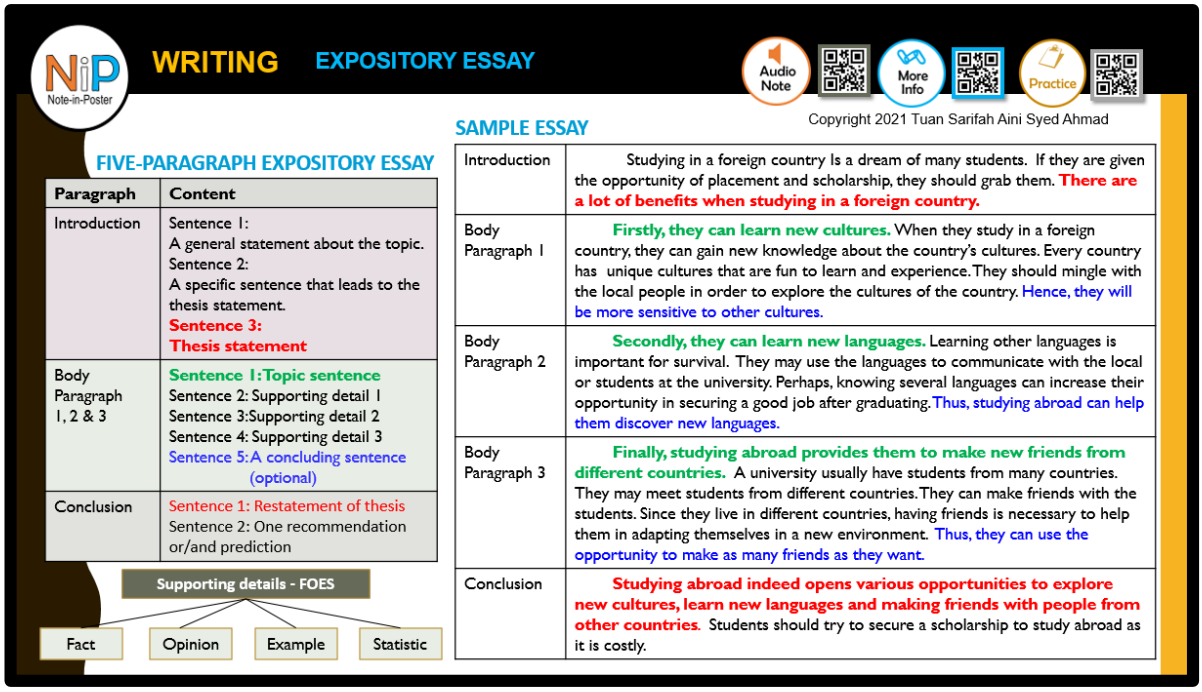


Figure 4 A sample of NiP

NOVELTY

The NiP framework has novelty due to three reasons. First, it is developed cautiously by considering students' learning styles which follow the VAL Learning Style Model (Fleming & Mills, 1992). Secondly, it takes into account Generation Z learning preferences that include rich multimedia contents, immediate access to learning resources which can be accessed online and digital interactive learning resources. Finally, it applies the Cognitive Theory of Multimedia Learning by selecting multimedia elements according to two channels (visual and auditory) and multimedia elements which use the same channel that are not applied at the same time (Clark & Mayer, 2011). For example, background music is not applied when narration text is used.

BENEFITS OF THE NiP FRAMEWORK

The NiP framework has three benefits. First, it provides a clear and comprehensive guideline in developing compact notes. Second, it facilitates the design and development of digital notes which support the needs of students with different learning styles. Finally, it enables the rapid development of NiP.

COMMERCIALIZATION POTENTIAL

The framework has no commercialization potential. However, NiP of various learning contents developed using the framework can be commercialised by making them available for purchase in the digital or conventional forms.

REFERENCES

Clark, R. C., & Mayer, R. E. (2011). e-Learning and the Science of Instruction. Learning (3rd ed.). San Francisco: John Wiley & Sons.

Fleming, N. D., & Mills, C. (1992). Not another inventory, rather a catalyst for reflection. To Improve the Academy, 11(1), 137. http://www.ntlf.com/html/lib/suppmat/74fleming.htm%5Cnhttp://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1245&context=podimproveacad

Fodor, M., & Jaeckel, K. (2018). What does It Take to Have a Successful Career Through the Eyes of Generation - Based on the Results of a Primary Qualitative Research. International Journal of Lifelong Education and Leadership, 4 (1). https://dergipark.org.tr/en/pub/ijlel/issue/39629/468944

Manning, K., D., Spicer, J. O., Golub, L., Akbashev, M., & Klein, R. (2021). The micro revolution: effect of Bite-Sized Teaching (BST) on learner engagement and learning in postgraduate medical education. BMC Medical Education, 21, 69 (2021). https://doi.org/10.1186/s12909-021-02496-z

Nastiti, D., Rahardjo, S. B., Elfi Susanti, V. H., Perdana, R. (2018). Development Based on Search, Solve, Create, and Share to Increase Generic Science Skills in Chemistry. *Jurnal Pendidikan IPA Indonesia*, 7 (4). https://journal.unnes.ac.id/nju/index.php/jpii/article/view/12393

Nicholas, A. J., (2020). Preferred Learning Methods of Generation Z Faculty and Staff - Articles & Papers. 74. https://digitalcommons.salve.edu/fac_staff_pub/74

Tuan Sarifah Aini, S. A., Nor Haniza, H., & Zurina, Z. (2022). Note-in-Poster: An Adaptive Way of Presenting Learning Contents for Generation Z in *Compilation of Research Papers 2022: Social Sciences & Humanities*. MNNF Publisher.

32

Monoslad: A Board Game to Enhance Grammar And Vocabulary

Norfazlika Abd Karim[1], Mohamad Iadid Ashrai Hassannudin[2], Siti Aisyah Mohamed Kamil[3], Muhammad Thaqif Wa'ie Noor Latiff[4], Azim Fahmi Yaakob[5]

[1, 2]Academy of Language Studies, Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Kuala Pilah, Malaysia

[3, 4, 5]Faculty of Applied Sciences, Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Kuala Pilah, Malaysia

Corresponding author e-mail: fazlika345@uitm.edu.my, iadid@uitm.edu.my

ABSTRACT

The use of educational games in language learning is rapidly growing. This is due to the fact that educational games create excitement in language lessons as they involve the elements of joy, interaction and competition, specifically physical tabletop games such as board games. Since learning grammar and vocabulary in English are perceived as scary, boring and complicated, board games can be an alternative for English teachers. Students can eliminate the fear in learning vocabulary and grammar, develop self-confidence, participate actively and even enjoy communicating verbally in English. Even though there is a growing trend in online games, physical tabletop games such as board games offer equal benefits. In short, this study aims to reveal the beneficial effects of using a board game named 'MonoSLad', to enhance the learning of grammar and vocabulary in English. Students played MonoSLad, responded to an individual interview and filled in a survey to share the effects that they experienced while playing the board game. The positive findings provide an extension of data related to the second language acquisition research inside and outside Malaysia, focusing on English grammar and vocabulary learning through the use of MonoSLad.

Keywords: Educational games, Board games, English language learning, Grammar, vocabulary

Introduction

To ensure students' engagement in English language learning can take a few alternatives, including using games. The idea of playing games to learn the English language in a classroom is not new but many language practitioners do not favour games as teaching and learning tools. However, board games, if aligned with the syllabus and relevant learning objectives, can be effective and meaningful. But what are the reasons for choosing board games over online games? According to Sardone and Devlin-Scherer (2016), although online games remain current and popular in the modern teaching and learning of the English language, board games are returning to the scene as they provide more beneficial effects to the students' language skills such as vocabulary, grammar, listening as well as speaking skills. Similarly, Sulistianingsih et al. (2019) assert that in creating an interactive and active learning environment, board games also provide psychological support for beginners to acquire the second language in more exciting and fun ways rather than learning from the basic exercises from language textbook. Moreover, board games nurture students' creativity, concentration and confidence that develop them to be fast thinkers which fit the current students' study skills set that require them to be fast, active and exploratory learners (Sardone & Devlin-Scherer, 2016). Dubreil (2019) supports the

ideas by stating that even though there is a growing trend in online games, physical tabletop games such as board games offer equal benefits. For those reasons, the MonoSLad board game is designed to facilitate the enhancement of students' vocabulary and grammar in the classroom and at the same time to ensure students' engagement in English language learning.

WHAT IS MONOSLAD AND WHY MONOSLAD?

MonoSLad is a type of educational game. However, this board game is considered as non-obvious and has never been seen in the market before. It is a combination and replication of two physical tabletop games called Monopoly, and Snake and Ladder. In Monopoly, the players aim to become the wealthiest player through buying, renting and selling of property and forcing other players into bankruptcy. One of the requirements for the game is to place the Chance and Community Chest Cards in the centre of the board in which a player draws one of these cards when he/she lands on the corresponding squares of the track and must follow the instruction printed on it. While in the Snake and Ladder, the players will only navigate the counter from start to finish, avoid the snakes, and take shortcuts by going up the ladders. The idea of designing the MonoSLad is to enhance the learning of English by having two sets of question cards on grammar and vocabulary rather than to just allow the players to understand the concept of Mathematics easily like in the Snake and Ladder or to polish property trading skills like in the Monopoly.

Equipment:

The items required are as follow

a. MonoSLad board
b. Dice
c. Four counters for four players
d. Two sets of question cards based on the selected theme, 'Food and Health':
    i. Grammar
    ii. Vocabulary

The game rules

The game rules are as follow:

a. Each player puts their counter on the space that says 'Start Here'.
b. Each player takes it in their turn to roll the dice. A player needs to move his/her counter forward the number of spaces shown on the dice.
c. If a player's counter lands at the bottom of a ruler, he/she will be given a question card on Grammar. One player will have to read the question card that is faced down on its allotted space on the board and check the answer. The player can move up to the top of the ruler if his/her answer is correct. However, if his/her answer is incorrect, the player will have to remain at the same spot.

Meanwhile, if a player's counter lands on the head of a string, his/her will be given a question card on Vocabulary. One player will have to read the question card that is faced down on its allotted space on the board and check the answer. The player must slide down to the bottom of the string if his/her answer is incorrect. However, if his/her answer is correct, the player will remain at the same spot.

a. The counters of different players can overlap each other without knocking out anyone. There is no concept of knocking out by opponent players in MonoSLad.

b. To win the game, each player needs to roll the exact number of dice to land on the number 100. If players failed to do so, then they need to roll the dice again in the next turn. For example, a player's counter is on the number 98 and the dice rolls show the number 4, then the player cannot move his/her counter until the player gets a 2 to win or 1 to be on the 99th number.

c. The first player to get to the space that says 'Home' is the winner.

Below are the gameboard and questions cards of MonoSLad:

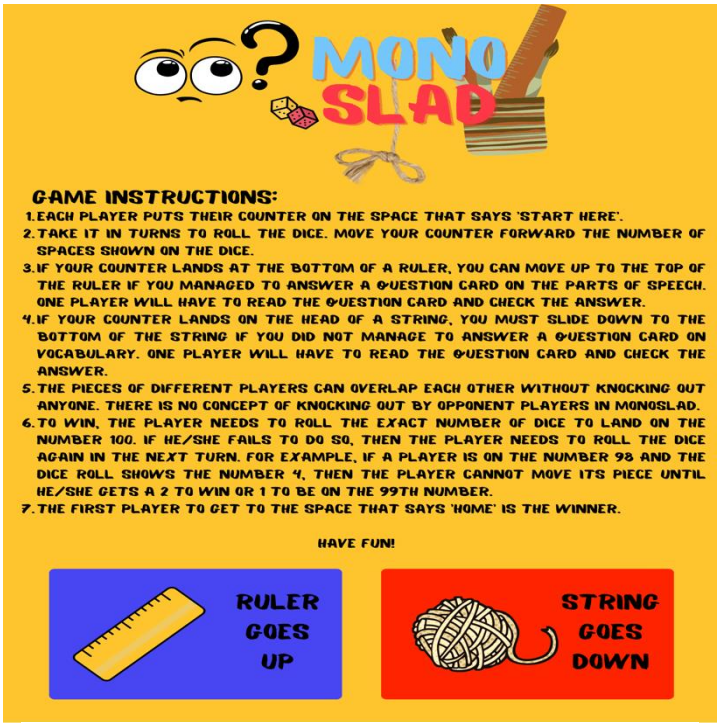


Figure 1 The game board

Figure 2 The question cards

A STUDY ON EFFECTINESS OF MONOSLAD

Methodology

The respondents were selected based on a purposive sampling which involved 54 students of Pre-Diploma in Science at Universiti Teknologi MARA Cawangan Negeri Sembilan, Kampus Kuala Pilah, Malaysia. However, out of 54 students, only 4 students had the experience of physically playing the MonoSLad. They consisted of 1 male and 3 females. This small sample size was due to the fact that there were only a few students who were on campus as the rest opted to learn remotely from wherever they were. It was also because the researchers strictly adhered to the COVID-19 standard operating procedures (SOP) set by the university. Therefore, only 4 students were called up to physically play the MonoSLad in one of the researchers' offices. The remaining 50 respondents watched the video of their friends who physically played the board game and later shared their personal opinion in the survey based on what they had observed. As for the 4 students, an individual interview had been conducted to investigate the effects that they experienced while playing the board game and later shared their personal opinion in the survey. The researchers, who were also the class teachers, had taught the intended grammar and vocabulary in the classroom to enable them to understand, remember and apply the grammar and vocabulary learnt in class. Since the students used a theme-based textbook, the researchers decided to design two sets of question cards based on the selected theme: 'Food and Health' for the MonoSLad. The researchers briefed the students on how to play the MonoSLad and they were then instructed to play the board game in order to investigate the effects that they experienced while playing the board game. Each of the student's experiences was obtained through an interview right after they were done playing the MonoSLad and while their experience was still fresh in mind.

Results and Discussion

An individual interview was conducted with the 4 respondents and the responses were as shown in Table 1 below:

Table 1
The recorded responses of the individual interview

Respondent	Response
S1	"I like playing MonoSLad because it helps me to strengthen my grammar and vocabulary". "It also promotes communication with other players as the game itself is interactive".
S2	"I really enjoy playing the game". "I felt really excited to read the questions printed on the cards. I can also think of the answers while reading the questions aloud".
S3	"I really had fun playing the game". "The board game has attractive features. It is colourful". "The questions are challenging". "It can help me to improve my grammar and vocabulary better". "It can help me to recall grammar and vocabulary lessons".
S4	"I like the competitiveness in playing the game". "It is not boring to recap grammar and vocabulary lessons while playing the game".

Meanwhile, the findings of the survey reveal that the 54 students had a positive experience playing the board game in the classroom as to enhance their vocabulary and grammar. It had been identified that most of the respondents selected "Strongly Agree" and "Agree" in all of the items in the survey such as the questions on feelings, features and beneficial effects. Only a few of them selected "Strongly Disagree" and "Disagree" in only a few items.

Overall, the respondents showed a positive attitude toward the use of MonoSLad as a tool in the learning of grammar and vocabulary, and the benefits it will bring. Among the beneficial effects recorded in the use of MonoSLad are: i) it motivates learners ii) it promotes learners' interaction iii) it improves learners' acquisition and, iv) it increases learners' learning achievement. Since grammar and vocabulary lessons are usually perceived as scary, complicated and boring by many students, MonoSLad is hoped to lower anxiety, encourage active participation and create an enjoyable learning experience. The teaching of English as a second language (ESL) nowadays focuses more on the language skills of reading, speaking, listening and writing rather than language knowledge. Therefore, it is not surprising that grammar and vocabulary lessons are popularly integrated into skill lessons or even ignored in ESL classes. The findings of this study imply certain pedagogical implications and recommendations for teaching grammar and vocabulary to ESL learners all over the world.

Below are the pictures of students playing on the MonoSLad boardgame:

Figure 3 Pictures of students playing MonoSLad.

CONCLUSION

In conclusion, the invention of the MonoSLad board game proves to provide beneficial effects to the students as to enhance their learning of grammar and vocabulary in English. This can be observed in the findings of the individual interview and survey. As mentioned earlier, the respondents showed a positive attitude toward the use of MonoSLad as a tool in learning English grammar and vocabulary. The use of the board game also successfully eliminated students' fear and boredom in learning grammar and vocabulary as they can learn, play and communicate with other students at the same time.

However, this study has limitations too. One of them is the findings of the survey that were not based on the respondents' actual experience physically playing the board game. Instead, it was merely based on their observation of their friends' recorded videos. In the video, there were only 4 students who physically played the board game. This was due to the fact that there were only a few students who were on campus as the rest opted to learn remotely from wherever they were. It was also because the researchers strictly adhered to the COVID-19 standard operating procedures (SOP) set by the university.

Despite the limitations, the MonoSLad board still has a huge potential for students' learning in this technological era as it creates more authentic and meaningful experiences for the students with their English teacher and peers.

REFERENCES

Dubreil, S. (2019). Using games for language learning in the age of social distancing. Foreign language annals 53(2), 250-259. https://onlinelibrary.wiley.com/doi/abs/10.1111/flan.12465

Sardone, N. B., & Devlin-Scherer, R. (2016). Let the (board) games begin: Creative ways to enhance teaching and learning. The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 89(6), 215- 222. https://www.tandfonline.com/doi/abs/10.1080/00098655.2016.1214473

Sulistianingsih, E., Febriani, R., & Pradjarto, J. (2019). The effect of interactive board games (IBG) on vocabulary achievement. Langkawi: Journal of The Association for Arabic and English, 5(2), 127-139. https://ejournal.iainkendari.ac.id/langkawi/article/view/1458

33

Edupreneur Centre: A Web-Based Learning for Entrepreneurship Education

Nur Fadhlina Zainal Abedin
Faculty of Business Management
Universiti Teknologi MARA, Cawangan Negeri Sembilan
Kampus Seremban
nurfadhlina@uitm.edu.my

Faridah Pardi
Faculty of Business Management
Universiti Teknologi MARA, Cawangan Negeri Sembilan
Kampus Rembau
faridah405@uitm.edu.my

Asma' Rashidah Idris
Faculty of Business Management
Universiti Teknologi MARA, Cawangan Negeri Sembilan
Kampus Rembau
asmar440@uitm.edu.my

ABSTRACT

During the worldwide COVID-19 pandemic, live streaming and online webinars gained popularity as options for online entrepreneurship education. Today's teaching and learning methodologies have entered a new phase that relies on information and communication technologies. However, without appropriate, structured, and interactive online materials, the online classroom may resemble the conventional in-person teaching style. The online learning process became unpleasant due to poor involvement during live lectures. To keep students interested in a class, digital multimedia and websites should be employed in addition to traditional lectures. Therefore, the interactive online learning platform known as the Edupreneur Centre Website was developed. It compiles all the relevant learning materials to become a one-stop information centre for ENT300 Fundamental of Entrepreneurship. This website is unique since no other websites are entirely applicable to the ENT300 course. The website's functionality also makes it practical and user-friendly for visitors.

Keywords: Entrepreneurship, video lecture, website, online learning

INTRODUCTION

Entrepreneurship education imparts skills needed to set up a new business. There are many ways in which entrepreneurship education is offered. Public channels such as lectures, seminars or group discussions have always been a good choice for delivering information to enhance the understanding of entrepreneurship education. These channels are known for effectively disseminating information to a large group of target audiences within a short period. However, due to the COVID-19 pandemic, restrictions on mass gatherings and social distancing requirements have limited face-to-face classroom instruction, resulting in a massive quick shift to online teaching methods (Ratten, 2020).

Consequently, mediums such as live streaming and online webinars such as Google Meet, WebEx and Zoom became the popular choices for online entrepreneurial education during the global pandemic. Modern teaching and learning styles have now embarked on a new dimension that merely depends on information and communication technology. Devices and tools such as laptop or tablet computers, mobile devices and smartphones are used as a medium for teaching and learning entrepreneurial knowledge, skills and competencies. Many studies have examined the adoption of various technologies and innovations in online and distance learning, for example, digital technology (Rippa, 2018), social media (Waghid, 2017), Massive Open Online Courses (MOOCs) (Chang, 2017) and cloud computing (Holinska et al., 2019).

However, the optimum mode of delivery has been much debated (Audet et al., 2018). The online classroom may be more closely like the traditional face-to-face classroom instruction without proper, systematic and interactive online resources. For instance, low engagement during live streaming lectures leads to an unpleasant learning experience (Martin & Bolliger, 2018). Moreover, some students struggle to stay connected with the instructors during online learning classes (Hollister et al., 2022). Therefore, it is a necessity to examine an established teaching and learning method that can improve the teaching and learning environment. It is believed that interactive teaching and learning could be actively created for any subject area. Digital multimedia and websites should be used alongside conventional lectures to keep students engaged in class. Thus, an online learning platform known as the Edupreneur Centre Website was developed to provide a one-stop interactive information centre for the students who enrol for ENT300 Fundamental of Entrepreneurship. This could help them gain knowledge about the course in-depth, particularly in the case of diploma students in Universiti Teknologi MARA (UiTM).

DESIGN AND DEVELOPMENT OF THE PRODUCT

The total development process of the product consisted of seven steps, from Project Definition through Maintenance and Regular Upgrading. Figure 1 shows the flowchart of the procedure. The problems which were not brought up in the initial plan of designing the web were addressed during the first step, known as the Project Definition. Two major platforms, namely YouTube and Weebly, were chosen to ensure that the materials and information are successfully provided and distributed among students and instructors. Necessary data were collected to ensure the web design was on track. At this stage, necessary features and functions for the website were determined. The next step was to provide consent forms to students who enrolled in ENT300 Semester April 2021 since selected students' assignments were compiled and uploaded on the website. The Material Creation phase included the recording, writing, and producing several types of contents, including landing pages, videos, photos, notes, business plans, business model canvas (BMC), blog posts, and products. In the beginning, the video lectures were recorded and edited before being posted on the YouTube channel. Apart from the videos, the website contains examples of the previous semester's business plans and BMC. After selecting a business strategy, assembling and editing the e-book edition began. The colour palette, iconography, images, and other components were also applied at this point. The procedure also included putting all of the previously created pieces together and creating a functioning website. One of the most important stages of the web development process is testing. At this phase, the functionality of the website's parts was tested. The goal is to detect problems, such as broken links and device compatibility, to guarantee that everything functions properly. The website was successfully published and launched. The latter stages involved regular maintenance and upgrading. The web design is shown in Figure 2.

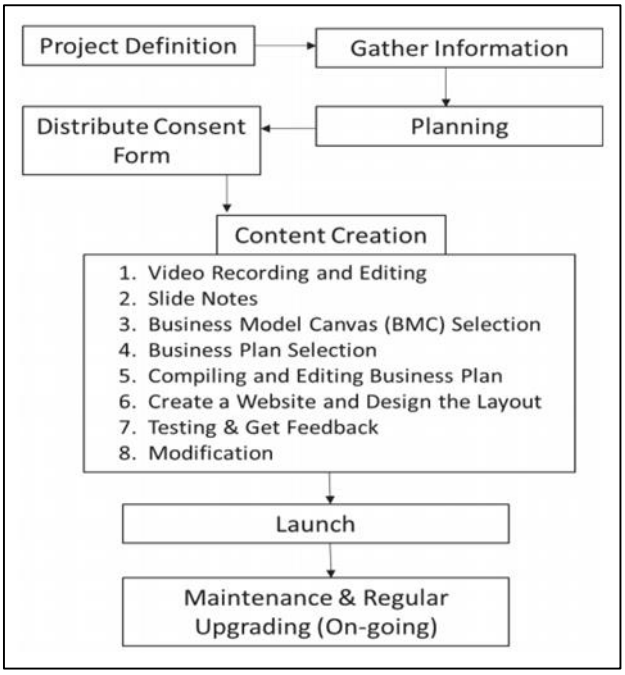


Figure 1 Process Flow Chart of Edupreneur Centre Website Development
Source: Abedin, Pardi & Idris (2021)

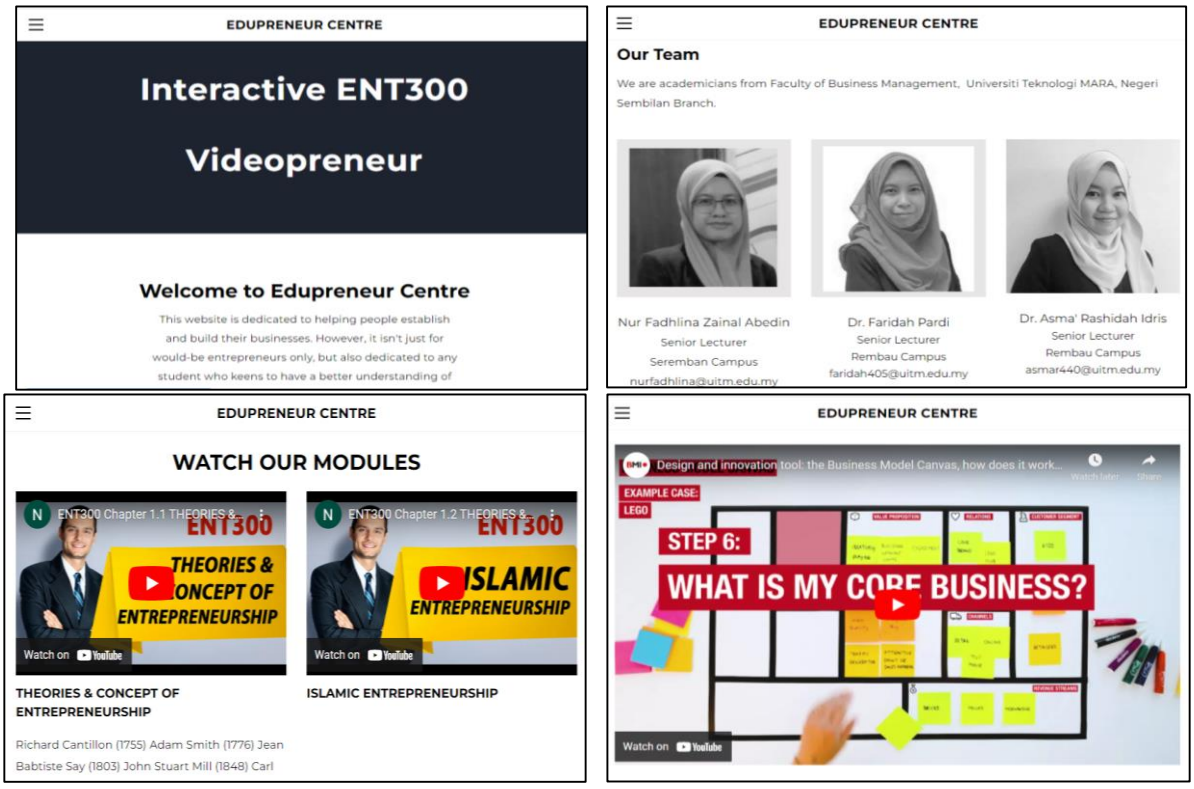


Figure 2 Web Design of the Edupreneur Centre Website

The Effectiveness of the Product

To examine the effectiveness of our website, a parametric analysis of the website users was conducted. The study consisted of 210 diploma students in Universiti Teknologi MARA, Negeri Sembilan branch, who completed the Fundamental of Entrepreneurship course (ENT300), semester of March 2022. The

student's performance represented by an overall score mark was the outcome variable, while the teaching method (live streaming, video and mixed) was considered the independent variable in the study.

The performance differences comparison was analysed using a one-way analysis of variance (ANOVA). The study met the normality and homogeneity of variances assumptions. The Levene test ($F=2.335$, $p=0.099$) shows an insignificant p-value indicating that the variances of the teaching methods were equal. The ANOVA results show a statistically significant difference between group means with $F(2, 208) = 11.028$, $p = 0.00$.

Further tests by Tukey and Benferoni indicated a statistically significant difference between live streaming teaching methods with a video lecture and live streaming with mixed methods. However, there was no statistically significant difference between video and mixed methods. The descriptive mean for student performance was 87.0, 77.87 and 72.75 for mixed, video lecture and live streaming teaching methods, respectively. The mixed teaching method scored the highest mean performance indicating that it was the best teaching approach compared to the other methods.

NOVELTY & COMMERCIALISATION POTENTIAL OF THE PRODUCT

This website is unique because there is no website available so far that is entirely applicable to the ENT300 modules. A copyright application with MyIPO Malaysia had been registered. Additionally, an e-book containing a selection of student business plans is made available for sale. The business background, business goals, product description, administration plan, marketing strategy, operational plan, and financial plan are all included in this e-book, along with step-by-step directions for developing each business plan chapter. The e-book guides the general public in creating their business plans, particularly regarding the resources (capital, employees, premise, raw material, financial) and to achieve long-term and short-term goals.

CONCLUSION

The main goal of this study is to provide an online learning platform for the ENT300 Fundamentals of Entrepreneurship course. Interactive methods such as digital technology and greater visualisation should be employed during the teaching and learning to attract students' interest in the course. It is proven that the Edupreneur Centre Website is statistically significant in enhancing the lectures and thus their score performance. Therefore, the website with video lecture integration can be a part of the teaching and learning mediums alongside traditional teaching. Future studies may include enhancing the current platform with a game-based learning element.

REFERENCES

Abedin, N. F. Z., Pardi, F., & Idris, A. R. (2021). Educational Panacea to Entrepreneurship: Interactive ENT300 Videopreneur.

Audet, J., Tremblay, M., Chartier, S., & Contreras, C. (2018). Effective online entrepreneurial education: Is it possible? *Journal of Entrepreneurship Education*, *21*(15).

Chang, W. L. (2017). Online training for business plan writing through the World Café method: The roles of leadership and trust. Universal Access in the Information Society, 16(2), 313–324. https://doi.org/10.1007/s10209-016-0459-y

Holinska, T., Komarovska, O., Melnyk, O., Petko, L., Shpitsa, R., Sova, O., & Strohal, T. (2019). Cloud technologies in art entrepreneurship education. Journal of Entrepreneurship Education, 22, 1–6.

Hollister, B., Nair, P., Hill-Lindsay, S., & Chukoskie, L. (2022). Engagement in Online Learning: Student Attitudes and Behavior During COVID-19. Frontiers in education

Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning*, *22*(1), 205-222.

Ratten, V. (2020). Coronavirus disease (COVID-19) and sport entrepreneurship. *International journal of entrepreneurial behavior & research*.

Rippa, P. (2018). Digital academic entrepreneurship—The potential of digital technologies on academic entrepreneurship. Technological Forecasting, 146, 900–911.

Waghid, Z. (2017). Using film and online group blogs to cultivate a community of inquiry: A case studied at a University of Technology in South Africa. Progressio, 38(2), 106–131. https://doi.org/10. 25159/0256-8853/2103

34

Exploring the Potential of Using Scratch to Develop Games for Quality Preschool Online Education

Tuan Sarifah Aini Syed Ahmad
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
tsyaini@uitm.edu.my

Nor Haniza Hasan
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Rembau
norha207@uitm.edu.my

Ihsan Ismail
Digital Education Secretariat
Ministry of Education
Ihsan.ismail@moe.gov.my

Kamarul Azman Abd Salam
Digital Education Secretariat
Ministry of Education
kamarul@moe.gov.my

ABSTRACT

Online games are effective for learning at the preschool level. Its application supports Industrial Revolution 4, Sustainable Development 4 and Malaysian Education Blueprint 2013-2025. However, game design and development are challenging in terms of time, ICT skills and cost. Therefore, it is essential to identify a suitable application for the design and development of games for teachers who have limitations in terms of ICT skills, software and time. This paper aims to describe the innovation of designing and developing online games for preschool by using Scratch due to it allows scalability products since it is free, allows fast game design and development and flexible in terms of sharing the products, and supported by various digital devices and browsers. The game design and development used the ADDIE Model, two learning theories namely Behaviourism to facilitate the selection of gamification elements and Cognitive Theory of Multimedia Learning to facilitate the selection of multimedia elements. The online games are curated on Google Site for easy access. There is a potential to commercialise the online games by curating them in a phone application where users can be charged with the subscription fee.

Keywords: preschool, Industrial Revolution 4, sustainable development, online games, Scratch

INTRODUCTION

Online games are an effective learning tool for preschool students (Goga & Oplean, 2022). Therefore, it is essential to provide them with suitable online games in terms of contents which meet their syllabus and culture. This requires teachers to be involved in the design and development of online games for their students. However, designing and developing online games may be challenging due to insufficient

information and telecommunications (ICT) skills, time and budget. A study conducted by Mamat et al. (2020) demonstrated that the government preschool teachers in Malaysia lacked software to be utilised for teaching and learning, had time constraints to use ICT in teaching and learning and had the moderate level of ICT knowledge and skills. Hence, teachers who intend to design and develop online games need to identify applications which require less complicated ICT skills with low or free subscription fees.

The application of online games as a learning tool supports the Industrial Revolution 4.0 (IR4) as it incorporates the application of ICT in education and virtual education. IR4 permits learning to take place from anywhere and at any time. IR4 promotes personalised learning where students can learn at their own pace and learning flexibility (Ojo & Dorasamy. 2021). Implementing IR4 in preschool education is essential to support the enhancement of students' learning achievement.

With limitations in ICT skills, time and budget, teachers can still design and develop online games with the application of free and user-friendly apps. Therefore, the paper aims to describe the innovation of designing and developing online games for preschool by using Scratch, a free online application for designing interactive multimedia projects.

DESIGN AND DEVELOPMENT OF THE PRODUCT

The content selection

The content selected was English vocabulary for the preschool level. Therefore, the vocabulary used in designing the games was at the basic level (Level A1 and A2).

The application of instructional design model

The instructional design model used for the game design was the ADDIE Model which is illustrated in Figure 1. The project has not been curated on Google Site and can be accessed by preschool teachers and students. However, it has not been evaluated yet due to the constraints to obtain the sample for the study.

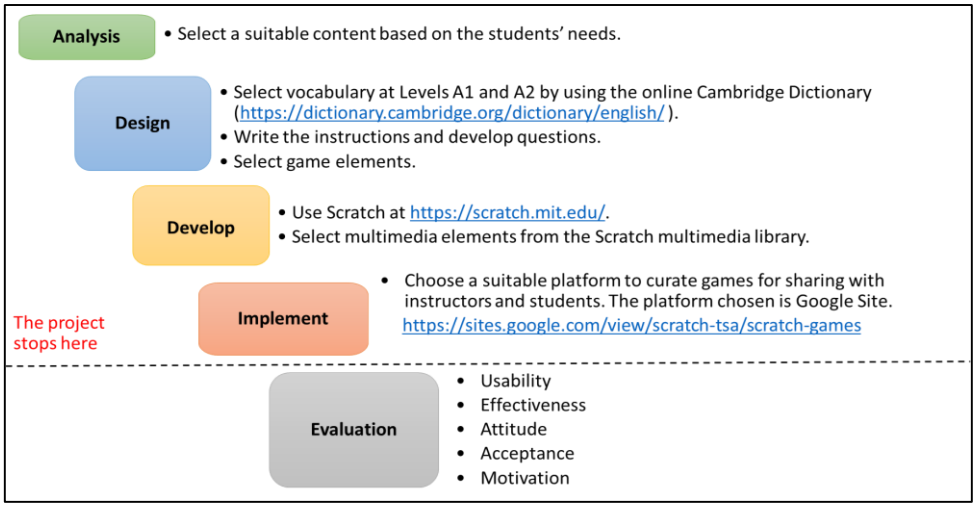


Figure 1 Application of the ADDIE Model to design and develop preschool online games

Figure 2 Screenshots of Google Site (https://sites.google.com/view/scratch-tsa/scratch-games)

Figure 3 Screenshots of games

The application of learning theories

There are two learning theories used in the design of the online games. The theory applied was Behaviourism to facilitate the selection of gamification elements such as score, verification feedback and praise feedback which promote positive reinforcement (Ertmer & Newby, 2013). The other theory applied was the Cognitive Theory of Multimedia Learning to facilitate the selection of multimedia elements (Clark & mayer, 2011) such as onscreen text, narration text, graphics, sounds and background music.

The application used to develop the innovation

Scratch was used to design and develop the online games. It was selected due to these reasons: (1) no coding is required, (2) free subscription fee, (3) free to publish games online on the Scratch games, (4) free multimedia elements are provided, and (5) numerous supports to use the application on social media and websites.

The cost and time spent

The cost to design and develop the online games is minimal as the application, multimedia elements and publication/ sharing of the online games are free.

The features of the innovation

The innovation is a set of online games for preschool. The online games are curated on Google Site for easy access. The online games were designed with selected multimedia and gamification elements to engage learning. They support IR4 which allows personalised learning.

Access to the innovation

It can be accessed on Google Site at https://sites.google.com/view/scratch-tsa/scratch-games.

NOVELTY OF THE PRODUCT

The product is novel due to several reasons. First, it facilitates preschool teachers to use ICT in teaching for developing games. The blocks used in the projects can be viewed by anyone so that they can imitate the projects or ignite fresh ideas to use Scratch for designing new projects. Second,the project is in line with the Malaysia Blueprint 2013-2025: Shift 7 (Leverage ICT) in order to increase quality learning across Malaysia by maximising the ICT application to assist distance and self-paced learning by expanding access to high-quality teaching in spite of location or student skill level and location (Ministry of Education, 2013). Third, it also supports the ICT model which focuses on self-directed online learning using applications to facilitate the use of games, learning at own pace and no human facilitation (Ministry of Education, 2013). Fourth, the project helps to attain Sustainable Development 4 (SDG 4) of Malaysia whereby by 2030, all children should have access to quality early childhood care, education and development to prepare them for primary education (United Nations in Malaysia, Singapore and Brunei Darussalam, 2022). Finally, the project is unique as it is scalable. The product can be scalable as Scratch offers 3F: Free, Fast and Flexible as shown in Figure 2.

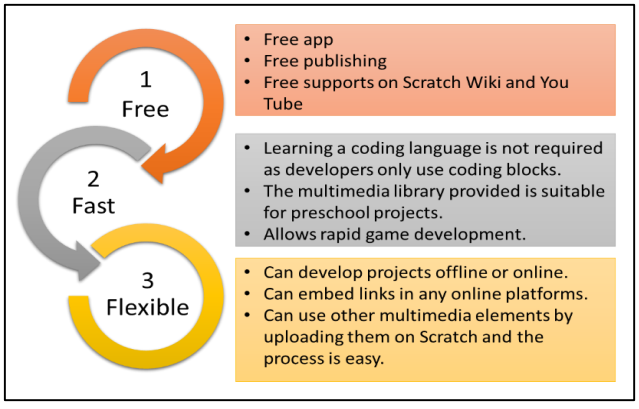


Figure 4 Scratch - 3F: Free, Fast, Flexible

COMMERCIALISATION POTENTIAL OF THE PRODUCT

The product can be commercialised if they are curated in a phone application where users need to subscribe when using the phone application.

REFERENCES

Clark, R. C., & Mayer, R. E. (2011). e-Learning and the Science of Instruction. Learning (3rd ed.). San Francisco: John Wiley & Sons.

Ertmer, P. A., & Newby, T. J. (2013). Behaviorism, Cognitivism, Constructivism: Comparing Critical Features From an Instructional Design Perspective. Performance Improvement Quarterly, 26(2), 43–60. https://doi.org/10.1002/piq

Goga, M., & Oplean, G. (2022). New Online Technologies in the Preschool Education. In INTED2022 Proceedings (pp. 9850-9854). IATED. https://library.iated.org/view/GOGA2022NEW

Ministry of Education. (2013). Malaysia Education Blueprint 2013-2025 (Preschool to Post-Secondary Education). Retrieved from https://www.moe.gov.my/menumedia/media-cetak/penerbitan/dasar/1207-malaysia-education-blueprint-2013-2025/file

Ojo, O. T., & Dorasamy, M. (2021, October). Turbocharge Higher Learning Institutions using Academic Entrepreneurial Engagement and Innovative Capability. In 2021 7th International Conference on Research and Innovation in Information Systems (ICRIIS) (pp. 1-6). IEEE. https://doi.org/10.1109/ICRIIS53035.2021.9617078

Mamat, N., Kamarudin, K., Ali, S. R., & Noh, N. M. (2020). The Integration of Information and Communication Technology (ICT) in Teaching and Learning in Government and Private Preschools in Malaysia. International Journal of Academic Research in Business and Social Sciences. 10(11), 104-112. https://rims.upsi.edu.my/public/pub/articles/evidence/11949-2021-01-02-12-50-27.pdf

United Nations in Malaysia, Singapore and Brunei Darussalam. (2022). Goal 4 Targets. https://malaysia.un.org/en/sdgs/4

35
FunTaskSticks

Dr Amalia Qistina Castañeda Abdullah
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
amali608@uitm.edu.my

Irma Ahmad
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
irma@uitm.edu.my

Rodhiah Amzah
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Seremban
rodhiahamzah@uitm.edu.my

ABSTRACT

The demand for increasing students to pass the pre-diploma programmes has boosted the need for active and motivating learning tools. The number of passing grades, various programmes, and a series of lectures was conducted for pre-science students at UiTM Negeri Sembilan. However, there are just a handful of activities in the form of games. *FunTaskSticks* is a game modified from the original *Pick-Up Sticks* and repurposed into the instructional lesson as part of learning exercises to support students learning activities in informal educational settings. Therefore, this study attempts to investigate how *FunTaskSticks* could engage the learning process of Physics and Biology and assist them in improving their fundamental grammar of the English language by using the terms and terminologies they have learned in classes and from the game. Thirty pre-diploma students participated in this study. The finding revealed that *FunTaskSticks* is not only educating the students cognitively but also affectively. Students learn to acknowledge, criticise, and praise each other, increasing their motivation and self-esteem. The usage of the English language and their conceptual understanding of Physics and Biology has grown throughout the games. They can quickly memorise and spell the terms and terminologies of Physics and Biology.

Keywords: board games, English, Physics, Biology, motivational games

INTRODUCTION

Over the years, the issues and challenges in teaching pre-science students at Universiti Teknologi MARA, specifically at the Negeri Sembilan campus, have been raised repeatedly. The two main issues are the students' background knowledge and low proficiency level in the English language. Programmes at Universiti Teknologi MARA are conducted in English. Therefore, in just one semester; in about three months; students have to use the opportunity given to them to perform at their level best to learn the courses that are conducted in English and score a GPA of at least 2.50 if they want to further their study at a higher level. The demand for passing the pre-diploma students increased the need for active and motivating learning tools. For the students to remember all the new terms or grasp new concepts, they must learn in context, practice, and then revise to prevent them from forgetting what they have learned. Research has shown that most students are visual sensing and inductive. However, in a traditional classroom, the teaching and learning process often features an auditory, abstract, deductive,

passive, and sequential "chalk and talk" procedure, which contrasts with the student's learning characteristics. Many have forgotten that "*one size doesn't fit all"*. In reality, all students are different and diverse students can equally fit into monolithic ways of teaching and learning.

The objectives of developing *FunTaskSticks* are as follows:

a.	*FunTaskSticks* English (2.0) and *FunTaskSticks* Physics and Biology (1.0) were developed to help students understand simple physics, biology, and English terms.
b.	This game is not only educating the students cognitively, but it also educates them affectively. Students learn to acknowledge, criticise, and praise each other, increasing their motivation and self-esteem.
c.	*FunTaskSticks* is not just a game that is played to win, but it is a game that encourages learning in a fun and motivational way.

When the students were asked about their views on the game, most said that they enjoyed it and that learning English through *FunTaskSticks* English was fun. However, it was hard for them to do the grammar part and also the spelling. Although, they did enjoy the true or false questions. Furthermore, they still have problems reading the questions in English as they need more time to understand them before answering them. In other words, the English language is still the main barrier to the students as it requires them to read and understand the questions before deciding on what and how to solve the problem.

Figure 1 *FunTaskSticks* board game

DESIGN AND DEVELOPMENT OF THE PRODUCT

Problem

Exploring the language anxiety of Malaysian learners in a study done by Darmi and Albion (2013) finds that the language anxiety of 205 Malaysian undergraduates of a public university towards learning English as a second language (L2). The Foreign language classroom anxiety scale (FLCAS) (Horwitz et al. 1986) was administered to the group. According to Foreign Language Classroom Anxiety Scale (FLCAS), 78.6% of diploma students experience a high level of English language anxiety. 70% of diploma students think that the English language has made Physics and other science subjects challenging to be learned. The student's participation in the classroom is considered passive and not voluntary in reflecting on the problems or questions given by their lecturers.

Method

FunTaskSticks English is a game modified from *FunTaskSticks Physics and Biology*. It uses the concept of the original pick-up sticks. Each set *of FunTaskSticks English* consists of 30 coloured sticks, four (4) sets of question cards, a dice, game rules, and a list of answers. The sticks are in four different colours and matched with the colours of the question cards. The questions are asked in the form of true or false, multiple choice questions (MCQ), grammar, and spelling.

THE NOVELTY OF THE PRODUCT

FunTaskSticks was developed to increase participation from students in understanding simple terms of English/Physics and Biology; it also enhances their understanding of these subjects. Furthermore, this game was developed to reduce students' anxiety and stress in learning the language by giving them the feeling that learning could be fun. Lastly, to facilitate the students' experience of educational games so that the focus of academic knowledge, especially in delivering information to learners, could be achieved.

COMMERCIALISATION POTENTIAL OF THE PRODUCT

The demand for lifelong learning increases the need for active and motivating learning tools. With the emergence of *FunTaskSticks*, the market will be able to give people an added tool in helping educate the students with a game that encourages learning in a fun and motivational way. This game is very flexible as the questions could cater to various fields, from science to mathematics and general knowledge. We have initiated *FunTaskSticks English* and *FunTaskSticks Physics and Biology*, and there is no limit to choices. Finally, in terms of content and practicality, *FunTaskSticks* could be done on a larger scale and involve more subjects like chemistry, mathematics, languages (Arab, Mandarin, etc.), and so much more. As mentioned earlier, *FunTaskSticks* is not just a game that is played to win, but it is a game that can be engaged in learning both cognitively and affectively.

CONCLUSION

The demand for lifelong learning increases the need for active and motivating learning tools. *FunTaskSticks English* and *FunTaskSticks Physics and Biology* were developed with the objective that they could help students to increase their understanding of simple terms of Physics and Biology and to increase their knowledge of the fundamentals of the grammar of the English language by using the terms they have learned in classes and from the game. Based on the findings, *FunTaskSticks English* and *FunTaskSticks Physics and Biology* did help the students to engage in their learning. The results from observations, questionnaires, and informal conversations have clearly shown that this game is not only fun but also educates the students in its ways.

This game is not only educating the students cognitively, but it also educates them affectively. Students learn to acknowledge, criticise and praise each other, increasing their motivation and self-esteem. They also learned to respect each other, although lots of laughing and teasing occurred throughout the game.

Finally, it is hoped that this study could be done on a larger scale and involve more students and subjects like Chemistry and Mathematics. As mentioned earlier, *FunTaskSticks* is not just a game that plays to win, but it is a game that engages learning in both cognitive and affective.

REFERENCES

Clark, B. D. (2010). Bilingual language support in online science inquiry environments. *Computer*

and Education, 1207-1224. Retrieved from https://doi.org/10.1016/j.compedu.2011.11.019

Darmi, R., & Albion, P. (2013). English language in the Malaysian education system: Its existence and implications. In Proceedings of the 3rd Malaysian Postgraduate Conference (MPC 2013) (pp. 175-183). Education Malaysia.

Jones, D.R. (2009). *Student Engagement-Teacher Handbook. International Centre for Leadership in Education*. New York, USA.

Primo,E., Sandler, S. Goldfrad, K., Ferenz, O. & Perpignan, H. (2010). Listening to students' voices: A curriculum renewal project for ELF graduate Academic program. *Science Direct*, 457-466. Retrieved from www.sciencedirect.com

Weissberger, G., Gollan, T.H., Bondi, M.W., Clark, L.R. and Wierenga (2015). Language and Task Switching in Bilingual Brain: Bilinguals are staying, not switching. *Neuropsychologia*, Volume 66, 193-203.ISSN 0028-3932.

36

Application of Kahoot! to Gamify Interactive Malaysian Halal Law Studies

Rafidah binti Mohd Azli
Universiti Teknologi MARA Cawangan Negeri Sembilan
Kampus Kuala Pilah
rafidah2262@uitm.edu.my

Abstract

Understanding the concept and the basics of Malaysian Halal regulations and laws is one of the course learning outcomes of the subject Malaysian Halal Laws. The most challenging part of teaching and learning by using online and distance learning is the participation of each student and their engagement in the lecture session. Teaching by using the live session and the students getting into the live room is not the final indicator to elaborate their level of understanding about the topics taught by the lecturer. This is because the relationship between the lecturer and the learners in the live session is not apparent. The responses from the students are needed to indicate their understanding. Therefore, in order to obtain the student's attention and participation in the Malaysia Halal Regulations live class and to justify the achievement of the above learning outcome, the gamification approach using Kahoot! is designed.

Keywords: Kahoot!, interactive, gamification, Halal Law Studies

INTRODUCTION

The Malaysian Halal Law syllabus contains several chapters which include Introduction to Law in Malaysia, Introduction to Halal Certificate in Malaysia, Halal-related Agencies, Halal-related Law, Issues and Challenges in Halal Industry. The students are required to understand the concept and basics of Malaysian Halal Regulations and identify the implementation of Halal regulations. The teaching and learning of laws are quite challenging in a one-way interaction between the teacher and students through non-face to face classes. Therefore, the purpose of using Kahoot! in teaching and learning this subject are as follows:

a. To make the online live class more interactive and measurable.
b. To measure the level of understanding among students of certain topics.

The innovation of teaching and learning Malaysian Halal Law was achieved by using gamification elements on Kahoot!. The understanding of students about the facts and important points given by the teacher in live Google Meet classes can be measured. Ten questions were created by the teacher which covered the first chapter of the syllabus entitled Introduction to Law in Malaysia. The questions applied the Low-Level Thinking Order of the Bloom's Taxonomy. The live quiz was conducted twice within 30 – 45 minutes per session[1].

Many studies have indicated the benefits of Kahoot! The benefits are (1) inducing motivation as well as engagement, (2) fostering and reinforcing learning (for both theoretical and practical aspects) (Tan et al., 2018), (3) an effective way to increase the students' grade and is useful to increase the everyday achievement of students (Ortiz-Martínez et al., 2022), (5) integrating gamification methods into traditional education (Fuchs, 2022), (6) enhancing academic performance, motivation and active engagement of students during remote teaching and learning (Mdlalose et al., 2021), (7) lecturers and

students have confidence regarding their preparation to use the learning management system (Sagala & Tri Indah Rezeki, 2022).

DESIGN AND DEVELOPMENT OF THE PRODUCT

For this study, several elements of Kahoot! that can assist the teacher on how to indicate the level of understanding of students were applied. After the live quiz session, Kahoot! shows a summary of report about the assessment.

The summary indicates the percentage of correct and incorrect answers by the students. Therefore, difficult questions can also be identified by the teacher by analysing the percentage of correct and incorrect answers. The summary also mentions the names of students who need help and do not complete the questions, so that the teacher can intervene to gain the responses from the students. In the 'question' section, the teacher is provided with the percentage of correct or incorrect answers for each of the questions. Therefore, the teacher can decide further intervention in order to increase the level of student's understanding of the questions that indicate a low percentage of correct answers.

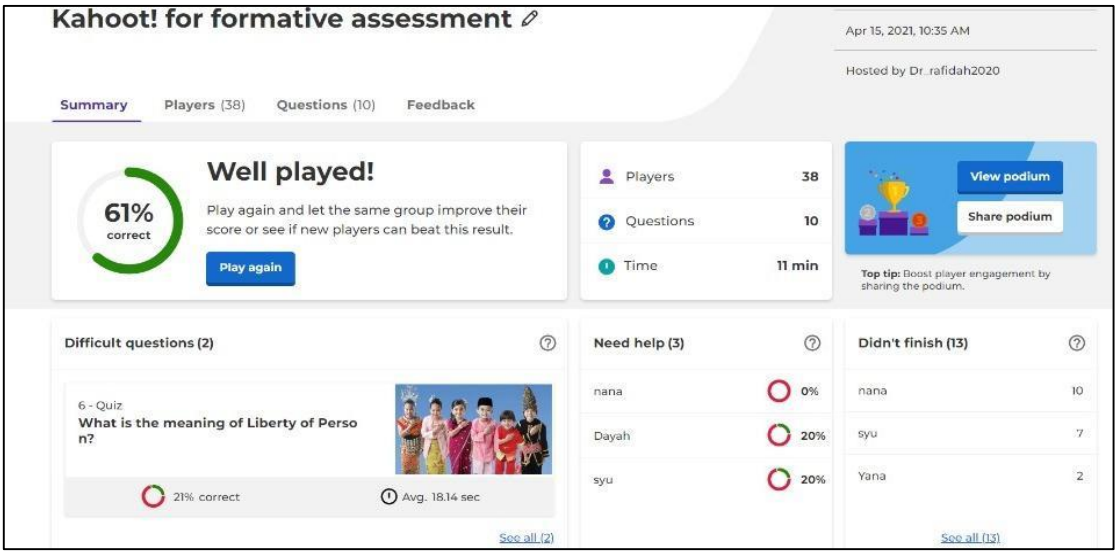


Figure 1 The Summary of Kahoot! It

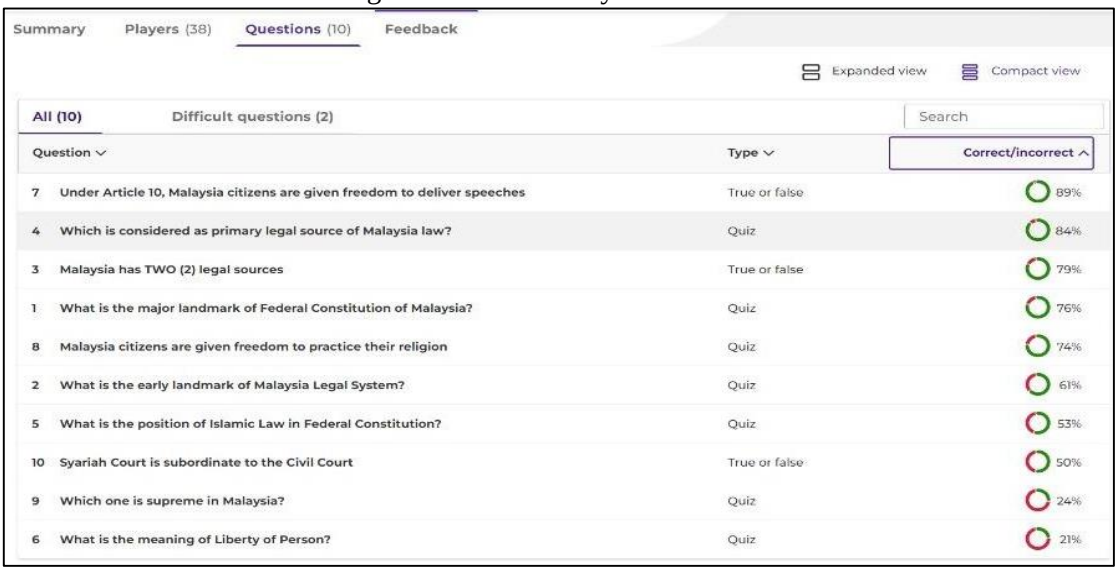


Figure 2 The Percentage of Students' Achievement by Questions

THE NOVELTY OF THE PRODUCT

Kahoot! is one of the gamification tools which can assist the teacher in creating interactive teaching and learning. The teacher can devise the questions with true or false, or multiple-choice questions (MCQ). Conducting an online class is a challenging session where the students cannot be reached one by one to measure their understanding of each of the topics. By creating a live quiz of Kahoot! the level of understanding of students can be measured by referring to the summary given in the reports. The reports also give feedback to students.

REFERENCES

Fuchs, K. (2022). Bringing Kahoot! Into the Classroom: The Perceived Usefulness and Perceived Engagement of Gamified Learning in Higher Education. *International Journal of Information and Education Technology*, *12*(7), 625–630. https://doi.org/10.18178/ijiet.2022.12.7.1662

Mdlalose, N., Ramaila, S., & Ramnarain, U. (2021). Using Kahoot! As A Formative Assessment Tool in Science Teacher Education. *International Journal of Higher Education*, *11*(2), 43. https://doi.org/10.5430/ijhe.v11n2p43

Ortiz-Martínez, E., Santos-Jaén, J. M., & Palacios-Manzano, M. (2022). Games in the classroom? Analysis of their effects on financial accounting marks in higher education. *The International Journal of Management Education*, *20*(1), 100584. https://doi.org/10.1016/J.IJME.2021.100584

Sagala, R. W., & Tri Indah Rezeki. (2022). Utilization of MOOCs Using Kahoot and Student Engagement in Digital Learning During COVID-19 Pandemics. *SALTeL Journal (Southeast Asia Language Teaching and Learning)*, *5*(1), 01–07. https://doi.org/10.35307/saltel.v5i01.82

Tan, D., Lin, A., Ganapathy, M., & Kaur, M. (2018). SOCIAL SCIENCES & HUMANITIES Kahoot! It: Gamification in Higher Education. *Pertanika J. Soc. Sci. & Hum*, *26*(1), 565–582. http://www.pertanika.upm.edu.my/

37
Radio Rookie Contest 2021

Isma Zuriyya Ismail
Faculty of Mass Communication and Media Studies
UiTM Negeri Sembilan (Rembau Campus)
isma2740@uitm.edu.my

Noor Hilmi Mohd Johan
Faculty of Mass Communication and Media Studies
UiTM Negeri Sembilan (Rembau Campus)
haihilmi@uitm.edu.my

Nurul Aishah Ab Raman
Faculty of Mass Communication and Media Studies
UiTM Shah Alam, Selangor
aishah7502@uitm.edu.my

Aiman Zikri Mohd Zawawi
Faculty of Mass Communication and Media Studies
UiTM Negeri Sembilan (Rembau Campus)
aimanzikri1999@gmail.com

Dzaifiq Khalif Darus
Faculty of Mass Communication and Media Studies
UiTM Negeri Sembilan (Rembau Campus)
dzaifiqkhalif@gmail.com

ABSTRACT

Universiti Teknologi Mara (UiTM) has no choice but to introduce Open and Distance Learning (ODL) very drastically, during COVID 19 pandemic in 2020. Lecturers and students of the undergraduate programme Mass Communication (Hons) (Broadcasting) (MC243) were very concerned about how the courses (especially the practical subjects) would be conducted. This is because most of the subject requires production work, camera work, creative work, etc. This knowledge can't be taught by theories alone. Students need to go into practice. For this reason, the Radio Rookie Contest 2021 (RRC 2021) was organised to find out to what extent an online platform can provide experience and insight into real studio practice. Therefore, as a first attempt, this contest focuses solely on audio works.

Keywords: podcast, online radio, radio broadcasting, online distance learning, mass communication.

INTRODUCTION

RRC 2021 is an event, and the products that result from it can be considered intangible assets. Bowdin (2006) defines events as specific rituals, presentations, performances, or celebrations that are intentionally planned and designed to mark special occasions and/or to achieve specific social, cultural, or corporate goals. Meanwhile, according to Spacey (2018), an intangible good is a value that can't be touched and has no physical form. This includes media products, such as videos and content.

Because MC243 students are majoring in broadcasting, the organiser took two important factors into account. The first is teamwork. A radio programme's content cannot be published by a single person. A

team of at least four people is required. A radio DJ can't write as well as a scriptwriter. As a result, the second point comes into play, creative work. Each team member's strength and talent should contribute to an interesting radio show.

According to the findings of Briandana and Irfan's 2019 study, one of the factors that contribute to programme rating, aside from gimmick and studio setting changes, is good team communication. Thus, having a productive team member on a broadcasting project is undoubtedly amazing.

Therefore, the objectives of this competition are:

a. To make students aware of the need for ideas and creativity in producing content for broadcasting.
b. To convey to the students that the contribution of each member of a creative team is important in the production of content for broadcasting.
c. Provide a platform for students to gain studio experience despite ODL restrictions during Movement Control Order (MCO).

DESIGN AND DEVELOPMENT OF THE PROGRAMME

Pre-Production Stage

RRC 2021 is only available to students enrolled in the Bachelor of Mass Communication (Hons) (Broadcasting) programme at Universiti Teknologi MARA Cawangan Negeri Sembilan, Rembau Campus.

For this reason, the organiser agreed to hold this competition under the Broadcasting Student's Association (CAST). The existing committee of the association agreed to be part of the organising team to ensure that the competition is well executed.

After a series of discussions, the organisers were able to develop some key ideas for the categories of the contest (see Table 1).

Table 1
Categories of the contest

No	Type of Programme	Category Contested	Award Contested
1.	Entertainment Radio Show	Individual Category	a. Best Radio PSA b. Best Radio Commercial c. Best DJ Partner d. Best Audio Editor
2.	Entertainment Radio Show	Group Category	a. Best Radio Jingle - First Place - Second Place - Third Place b. Best Radio Programme - First Place - Second Place - Third Place

Besides that, some other elements were also determined, including:

a. Terms and conditions of the contest
b. The dates and duration of the contest
c. The budget of the contest
d. Evaluation elements
e. Selection of the judges
f. Design of the media
g. Submission method
h. Prizes

On top of that, the organisers are very grateful that this competition gained one thousand one hundred forty Ringgit Malaysia (RM1140.00) as a result of support from the Faculty of Communication and Media Studies and Department of Academic Affairs, Rembau Campus, UiTM Negeri Sembilan. The organiser agreed to award cash prizes to the winners depending on the category in which they competed (See Figure 2).

Awards of cash prizes to winners according to categories

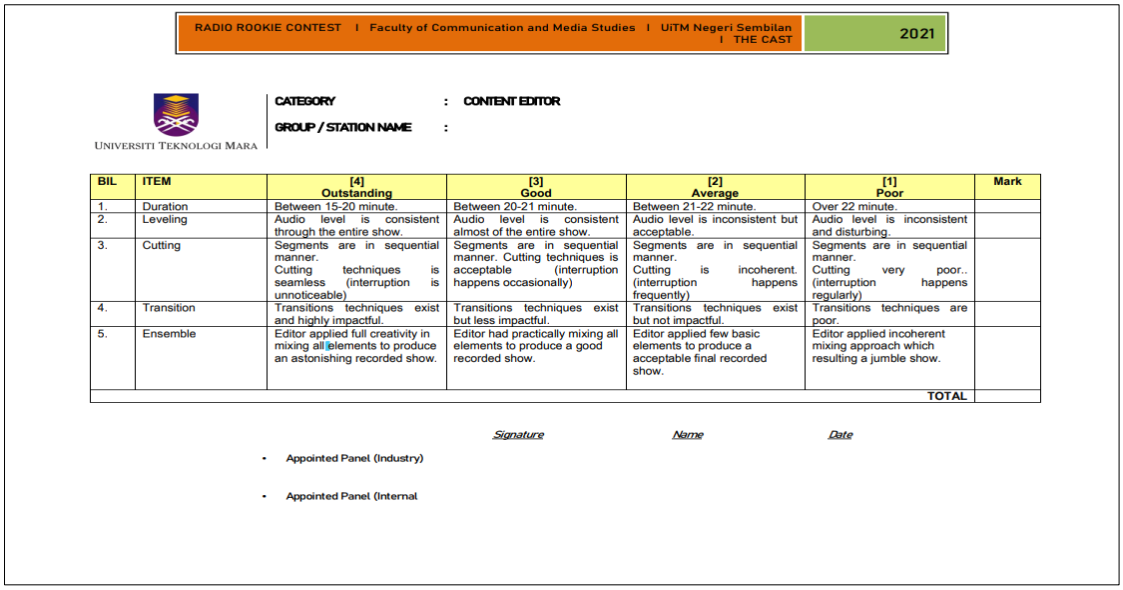
No	Type of Programme	Category Contested	Award Contested	Cash Prize
1.	Entertainment Radio Show	Individual Category	a. Best Radio PSA b. Best Radio Commercial c. Best DJ Partner d. Best Audio Editor	RM 50 RM 50 RM 50 x 2 RM 50
2.	Entertainment Radio Show	Group Category	a. Best Radio Jingle - First Place - Second Place - Third Place b. Best Radio Programme - First Place - Second Place - Third Place	RM 150 RM250 RM200 RM150

A rubric is a multi-purpose scoring guide for evaluating student products and performances (Wolf, K., & Steven, E. (2007). To ensure that this contest was judged fairly, the organisers had also decided that:

a. Judges came from both faculty (internal) and industry (external) (see Table 3).
b Developed a rubric for each competition entry that were used by all judges when evaluating the students' products. (see Figure 1).

Table 3
List of judges

No.	Jury	Name	Designation	Organisation
a)	Internal	Dr. Shazleen Mohamed	Senior Lecturer	UiTM Shah Alam
		Encik Abdul Hamid Saifuddin	Senior Lecturer	UiTM Shah Alam
		Puan Nur Aziemah Mohd Azman	Senior Lecturer	UiTM Shah Alam
		Puan Aeyneda Zairyn Abdul Jalil	Senior Lecturer	UiTM Shah Alam
		En. Fakruknizam Bin Jafri	Senior Lecturer	UiTM Negeri Sembilan
		Encik Shahril Anuar Abdul Ghalim	Senior Lecturer	UiTM Negeri Sembilan
		Puan Maizura Hj Manshor	Senior Lecturer	UiTM Negeri Sembilan
		Pn. Wan Admiza Binti Wan Hassan	Senior Lecturer	UiTM Negeri Sembilan
		Prof. Madya Dr Hj. Muhammad Hakimi Tew Abdullah	Senior Lecturer	UiTM Negeri Sembilan
b)	External	Encik Khairul Anuar Azmi	Professional VO	Freelancer
		Encik Mohamed Keanudin Mohamed Azman	Radio Producer & Host	Hitz FM (Astro)
		Puan Farahida Haji Fauzi	Radio Producer & Host	Terengganu FM (RTM)



RADIO ROOKIE CONTEST I Faculty of Communication and Media Studies I UiTM Negeri Sembilan I THE CAST 2021

UNIVERSITI TEKNOLOGI MARA

CATEGORY : CONTENT EDITOR

GROUP / STATION NAME :

BIL	ITEM	[4] Outstanding	[3] Good	[2] Average	[1] Poor	Mark
1.	Duration	Between 15-20 minute.	Between 20-21 minute.	Between 21-22 minute.	Over 22 minute.	
2.	Leveling	Audio level is consistent through the entire show.	Audio level is consistent almost of the entire show.	Audio level is inconsistent but acceptable.	Audio level is inconsistent and disturbing.	
3.	Cutting	Segments are in sequential manner. Cutting techniques is seamless (interruption is unnoticeable)	Segments are in sequential manner. Cutting techniques is acceptable (interruption happens occasionally)	Segments are in sequential manner. Cutting is incoherent. (interruption happens frequently)	Segments are in sequential manner. Cutting very poor.. (interruption happens regularly)	
4.	Transition	Transitions techniques exist and highly impactful.	Transitions techniques exist but less impactful.	Transitions techniques exist but not impactful.	Transitions techniques are poor.	
5.	Ensemble	Editor applied full creativity in mixing all elements to produce an astonishing recorded show.	Editor had practically mixing all elements to produce a good recorded show.	Editor applied few basic elements to produce a acceptable final recorded show.	Editor applied incoherent mixing approach which resulting a jumble show.	
					TOTAL	

Signature *Name* *Date*

- Appointed Panel (Industry)
- Appointed Panel (Internal

Figure 1 The competition rubric

Production Stage

Publicity and public relations are two of the most crucial areas that the organisers focus on. Through CAST social media platforms, the competition was originally publicised in May 2021. Unexpectedly, the reaction from students has been positive. For the individual category, the organiser received a total of 40 submissions, while the group category garnered 9 submissions.

The following is the deadlines of registration and submission of projects

Table 4
Deadlines of registration and submission of projects

No.	Item	Due date
1.	Registration Week	Due 30 May 2021
2.	Submission Week	Due 28 June 2021

By the end of June 2021, organisers had obtained every participant's recorded audio. The jurors received all the papers in digital format a week after the submission deadline had passed. After about 21 days, the organiser will receive the jury members' evaluation scores.

The winners were announced to the public on September 2, 2021, via the CAST social media platforms.

Post - Production Stage

The organiser's final task is to distribute the prizes to the winners. According to Uddin et al. (2014), e-wallet payment is currently one of the most popular transaction methods because it offers the advantages of convenience, flexibility, and security. Due to that, the committee decided to use Touch & GO E-Wallet as a method of money transfer (a total of RM1000).

Using this method, the winners can use their own devices to redeem the cash prize using the pin number provided.

Recorded materials can be accessed through this link: https://tinyurl.com/mtp7dfzu

NOVELTY OF THE PRODUCT

This is the Faculty of Communication and Media Studies' first audio competition. Aside from that, all submitted audio works from this contest are considered intellectual property, which can be claimed as innovation and sent for copyright.

REFERENCES

Bowdin, G. A. J. (2011). *Events Management*. Butterworth-Heinemann.

Briandana, R., & Irfan, M. (2019). Broadcasting Management: The Strategy of Television Production Configuring for Sustainability in The Digital Era. *International Journal of English Literature and Social Sciences*, *4*(6), 1879–1886.

Spacey, J. (2018, November 17). *18 Example of Intangible Goods*. Simplicable. Retrieved from https://simplicable.com/new/intangible-goods Spacey, J. (2017, November 17). *18 Example of Intangible Goods*. Simplicable. Retrieved from https://simplicable.com/new/intangible-goods

Uddin, M. S., & Akhi, A. Y. (2014). E-wallet system for Bangladesh an Electronic Payment System. *International Journal of Modelling and Optimization*, 4(3), 216-226

Wolf, K., & Stevens, E. (2007). The Role of Rubrics in Advancing and Assessing Student Learning. *The Journal of Effective Teaching*, *7*(1), 3–14.